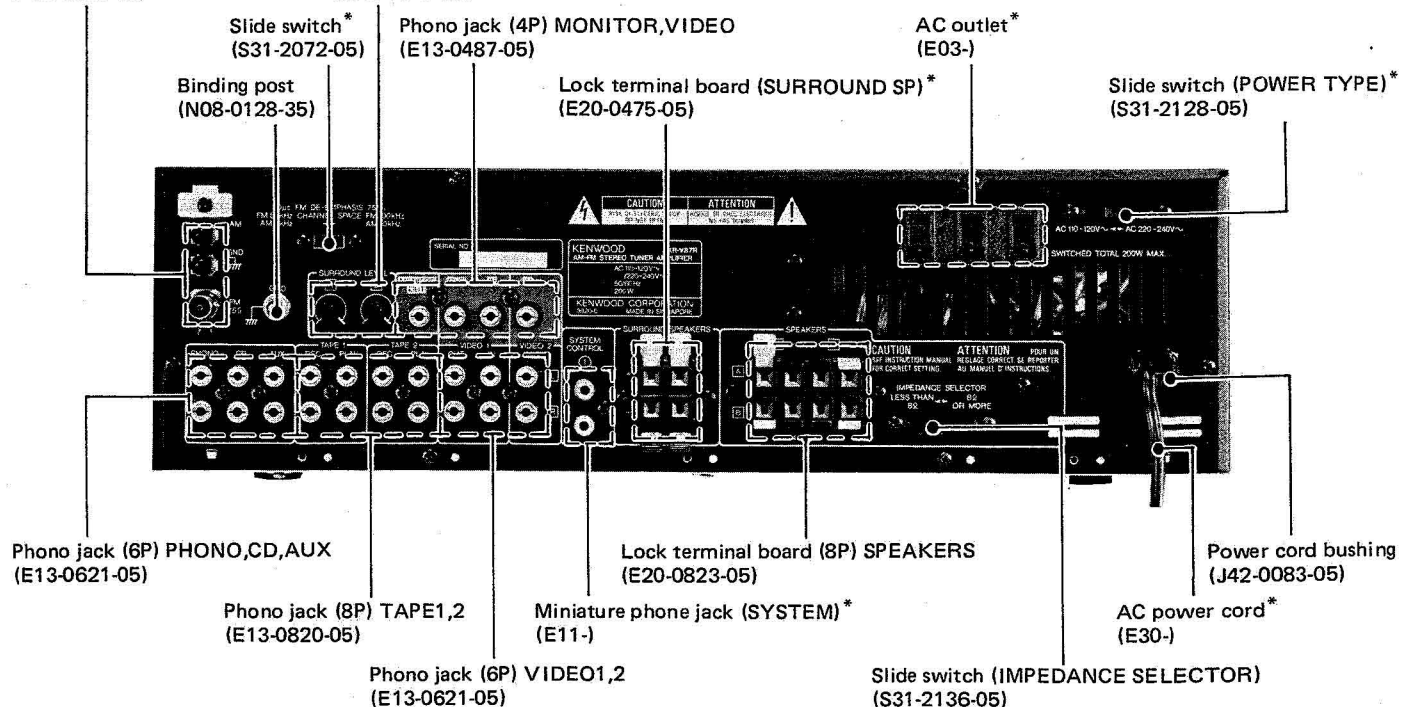


Screw terminal board (2P) ANT. Potentiometer (SURROUND LEVEL)*
(E20-0318-05) (R29-5019-05)



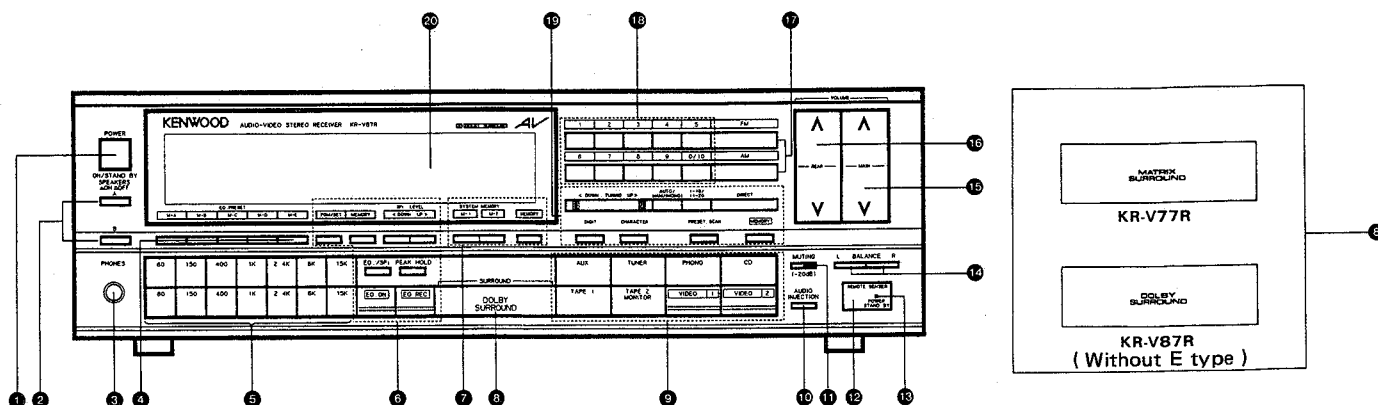
CONTENTS/CONTROLS AND INDICATORS

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CONTROLS AND INDICATORS



1 POWER switch

Press this switch to turn on power. Press it again to turn power off.

2 SPEAKERS A and B switches

A,B OFF – This position silences all speakers to permit private use of headphones.

A ON – Activates speakers connected to the SPEAKERS A terminals on the rear panel.

B ON – Activates speakers connected to the SPEAKERS B terminals on the rear panel.

A,B ON – Activates speakers connected to the SPEAKERS A and B terminals simultaneously.

Note:

When the SPEAKERS A and B switches are used at the same time, the speakers connected to the SPEAKERS A and B terminals are connected in series. In this respect, whenever using the SPEAKERS A and B switches at the same time, be sure that two pairs of speakers are connected to the terminals A and B, otherwise no sound is output.

3 PHONES jack

Stereo headphones are plugged into this jack.

4 EQ (Equalizer) PRESET keys

Use these keys to store equalizer curves in memory or to recall them.

PGM: User-adjusted equalizer curves can be programmed as desired and stored in memory; up to five patterns.

SET: Five factory-preset equalizer curves are stored in memory.

Up to 10 equalizer curve memories are available in total. Press the PGM/SET key to select either the user-programmed pattern or the factory-preset pattern.

5 Equalizer level controls

Adjust these controls up and down to equalize the sound by ± 12 dB to the center frequency indicated.

6 Equalizer function keys

Equalizer preset mode key (PGM/SET)

Each time this key is pressed, the recall mode of the equalizer preset curves alternates between PGM (user programmed patterns) and SET (factory preset patterns).

Equalizer preset MEMORY key

This key is used to store an equalizer curve into the PGM PRESET memories. First, select the desired equalizer curve and then press this key. Then press any of the PRESET (A to E) keys. The selected equalizer curve will be stored in the memory indicated by the PRESET key pressed.

CONTROLS AND INDICATORS

● SPI. LEVEL control keys (KR-V87R)

These control keys are used to adjust the display level of the spectrum analyzer display. Press the UP side of the key to increase the display level, and press the DOWN side to decrease it.

● EQ/SPI key (KR-V87R)

Pressing this key alternates the display mode between the EQ (graphic equalizer) and SPI (spectrum peak indicator.)

● PEAK HOLD key (KR-V87R)

In the spectrum peak indicator (SPI) mode, pressing this key activates or deactivates the Peak Hold function of the spectrum peak indicator.

● Equalizer (EQ, ON) key

Press this switch to ON and the frequency characteristic will be modified by passing through the graphic equalizer. In the DEFEAT position, the frequency characteristic remains unchanged.

● EQ REC key

Used when recording the source onto the tape deck through the equalized response of the graphic equalizer.

7 System memory keys

● SYSTEM MEMORY channel key (M-1/M-2)

Two groups of memory can be used with the preset channel key of the System Memory system. After entering the memory preset mode by pressing the SYSTEM MEMORY key, press the M-1 or M-2 key.

● System MEMORY key

This key is used to store the currently playing condition in memory.

8 DOLBY SURROUND key (KR-V87R without E type)

Press this key to activate or deactivate the surround output. In the KR-V87R, DOLBY surround mode is automatically entered when this key is pressed. In the KR-V77R, MATRIX surround mode is automatically entered when this key is pressed.

With the KR-V77R, when the speaker selector switch at the rear is set to 8Ω OR MORE, the surround mode cannot be obtained.

9 Input selector switches

TAPE 1 – Press this switch to play back a tape deck connected to the TAPE 1 jacks.

TAPE 2/MONITOR – Press this switch to play back a tape deck connected to the TAPE 2 jacks. (The TAPE 2 switch is operated in priority to any other audio input systems.)

VIDEO 1 – Selects the video recorders connected to the VIDEO 1 jacks.

VIDEO 2 – Select the video recorders connected to the VIDEO 2 jacks.

CD – Selects the source connected the CD jacks.

PHONO – Selects the program source played on the turntable.

TUNER – Selects the tuner mode.

AUX – Selects the source connected the AUX jacks.

10 AUDIO INJECTION key

Press this key ON when replacing the sound of VIDEO 2 with that of AUDIO source is required on dubbing between VIDEO sources.

11 MUTING key

When the muting key is pressed, the MUTING indicator in the display window will flash, and the overall listening sound level is reduced.

When the key is pressed again, you can restore exactly the same listening level as before.

12 REMOTE SENSOR

Point the supplied remote control unit towards this sensor and operate.

13 REMOTE POWER STAND BY indicator

This indicator lights so far as the power cord is plugged into the AC outlet. It is lit to show that the POWER switch on the front panel or the POWER key on the remote control unit can be activated.

14 BALANCE control key

Governs the amount of sound coming from each paired speakers to get optimum stereo effect. Pressing the RIGHT key will decrease the left channel volume and pressing the LEFT key will decrease the right channel volume. When the BALANCE controls is pressed, display window shows the BALANCE indicator.

15 MAIN VOLUME control key

This control adjusts the left- and right-channel volumes simultaneously. Set it for the desired listening level. Pressing the up (Λ) side increases the volume and pressing the down (V) side decreases it.

Indicator (Λ) or (V) blinks when this unit is operated directly or with the remote control unit.

The volume level of the rear speakers are controlled at the same time.

16 REAR VOLUME control keys (KR-V87R)

Adjusts front/rear balancing when surround speakers are used. The control range is ±20 dB of the front speaker level. (Without E type)

17 Band selector switches

FM – For FM broadcasts.

AM – For AM broadcasts.

18 Numeric (1 ~ 0/10) keys

Use these keys to:

- 1) input directly the digits of frequencies, or
- 2) store and recall frequencies in the preset channel.

19 Tuning function keys

● DIGIT key

In the station name input mode, pressing this key advances the column after selecting the character with the Tuning UP/DOWN key. When this operation is repeated four time, the station name input mode will be released automatically.

● CHARACTER key

Press this key to activate the station name input mode.

CONTROLS AND INDICATORS

● PRESET SCAN key

Use this key for preset channel scanning.

When a frequency stored in the preset memory is being received, pressing this key shifts the reception to the next frequency stored in the preset memory. (The preset channels are scanned in the order 1, 2,..... 11, 12,..... 20.) To stop a scanning operation, press the SCAN key again.

● MEMORY key

When the input mode is TUNER, use this key to store new broadcast station data in the preset channel memory. By pressing the MEMORY key, setting the preset channel to 1-10 or 11-20 and by pressing one of the numeric keys, the frequency being received is stored in the memory in the numeric key pressed.

● DIRECT key

Used to tune to the station directly. Input the desired frequency numerics with the numeric keys after pressing the DIRECT key.

● Preset function (1-10/11-20) key

Used to select 1-10 or 11-20 setting for the preset channel. In either FM or AM mode, 20 stations can be preset as random as each setting ("1-10" or "11-20") can contain 10 preset stations. Indicator "1-10" lights when "1-10" setting is used, and indicator "11-20" lights when "11-20" setting is used.

● AUTO/MANUAL (MONO) key

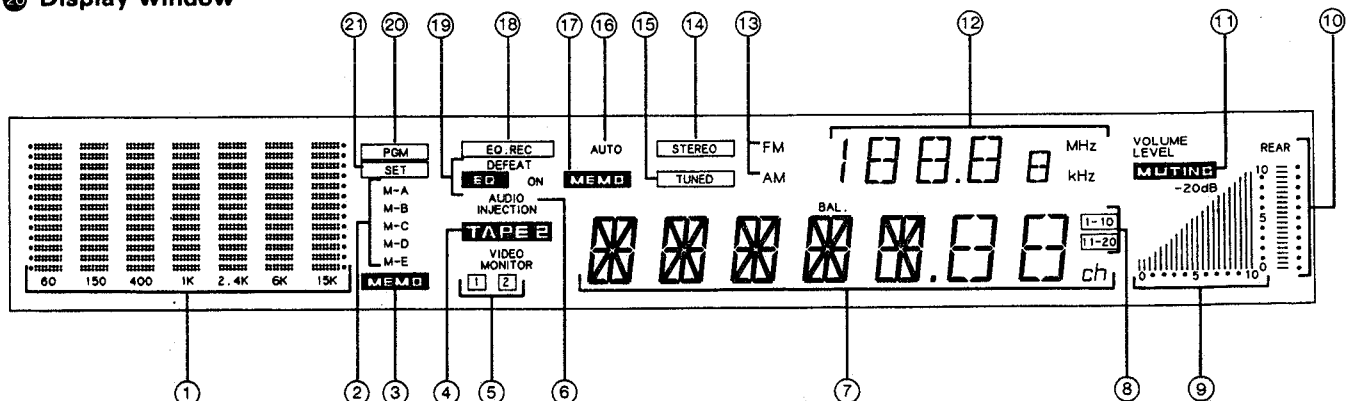
When this key is pressed, the AUTO indicator will light. The frequency will automatically stop at a station in automatic tuning mode. When a stereo broadcast is received, the output sound is automatically changed to stereo.

● TUNING keys

Used to change the frequency. Pressing UP side will advance to the higher frequency and pressing DOWN side to the lower frequency.

In the station name input mode, this key is used to select the character.

20 Display window



- ① In graphic equalizer mode, displays the equalizer level display, the music spectrum analyzer display and peak hold display.
- ② Displays when storing or recalling equalizer preset channel in memory.
- ③ Lights when the Memory (EQ) key is pressed to store the desired equalizer curve.
- ④ Lights when the TAPE-2 key is pressed.
- ⑤ VIDEO monitor out indicator.
- ⑥ Lights when the AUDIO INJECTION key is pressed.
- ⑦ This displays the input mode, preset channel, station name, front volume level, rear level, balance, DOLBY surround (KR-V87R), EQ preset channel, SPI level (KR-V87R), system memory indicator.
- ⑧ "1-10" or "11-20" lights according to the selection of the preset function keys.
- ⑨ Front volume level indicator
This indicator displays the volume level for the front-channel speakers.

- ⑩ Rear volume level indicator (KR-V87R)
The volume level of the rear-channel speakers is indicated within a ± 20 dB range.
- ⑪ Flashes when the MUTING key is pressed.
- ⑫ Displays the digital frequency display.
- ⑬ Displays the tuner band "FM" or "AM".
- ⑭ In tuner mode, lights when a stereo broadcast is tuned in.
- ⑮ In tuner mode, lights when a station is tuned in.
- ⑯ Lights during auto tuning.
- ⑰ Lights when the MEMORY key is pressed.
- ⑱ This indicator lights when EQ REC (equalizer recording) key is pressed.
- ⑲ Lights when the Equalizer (EQ. ON) key is set to "ON". Lights when the Equalizer (EQ. ON) key is set to "DEFEAT".
- ⑳ Lights when the Equalizer preset mode (PGM/SET) key is set to "PGM".
- ㉑ Lights when the Equalizer preset mode (PGM/SET) key is set to "SET".

CONTROLS AND INDICATORS

■ Listening to AM/FM

1. Press the Power switch to ON.
2. Press the TUNER key of the input selector.
3. Select FM or AM of the band (FM/AM) selector.
4. Tune to the required station with following procedures: Auto tuning, Manual tuning or Direct tuning.

Auto tuning

1. Press the AUTO/MANUAL (MONO) key to set to "AUTO".
2. Press the UP or DOWN TUNING key: The frequency will automatically increase or decrease until a station with sufficient signal level is received. To stop the frequency scanning before a station is received, press the AUTO/MANUAL key to set to "MANUAL".
3. Adjust the VOLUME control to the required listening level and use the graphic equalizer control to adjust the sound to your own preference.

Manual tuning

1. Press the AUTO/MANUAL (MONO) key to set to "MANUAL".
2. Press the UP/DOWN TUNING key to tune in the desired station.
To continuously increase or decrease frequencies, hold the TUNING key depressed.
3. Adjust the VOLUME control to the required listening level and use the graphic equalizer control to adjust the sound to your own preference.

Direct tuning

1. Select FM or AM with the FM, AM selector switch.
2. Press the DIRECT key.
3. Input the desired frequency with numeric keys.
4. The receiver enters the radio reception mode just after the frequency value has been input.
(If the input value is outside the tuning range, the frequency display flashes for 5 seconds and the receiver returns to the radio reception mode of the last channel.)

■ Presetting broadcast station data

In total up to 20 stations data (station frequency and station name) can be stored in memory.

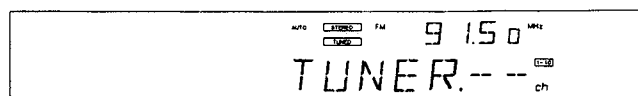
1. Select the desired station with either AUTO tuning, MANUAL tuning or DIRECT tuning.
2. Input the broadcast station name in accordance with the character input procedure.
For the broadcast station names, up to 4 characters can be input.
- When the contents in item 2 is not required for display memory, proceed to item 3 after item 1.
3. Press the preset function key to select "1-10" or "11-20".
4. Press the MEMORY key. (The MEMORY indicator lights.)
5. Press one of the numeric keys: The frequency being tuned in and the station name are stored.

Character input procedure

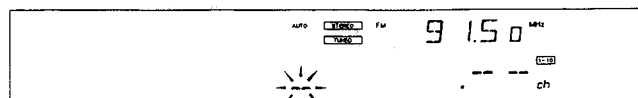
1. Press the CHARACTER button to set the character input mode. The first column of the character display section begins flashing.
2. Press the TUNING UP/DOWN key to select the character.
3. When the desired character is displayed, press the DIGIT key.
Flashing will shift to the next column.
4. Repeat procedure 3 and 4 for four times to complete inputting. The character input mode will be released.
- Even in the middle of inputting, pressing the CHARACTER key again will release the character input mode. At this time, the data which has been input is valid.

Example 1: To preset the 91.50 MHz FM broadcast and a station name "W N Y" when the station other than the preset channel memories is received.

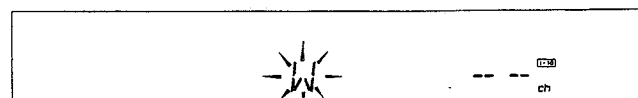
1. Tune to 91.50 MHz FM broadcast.



2. Press the CHARACTER key.

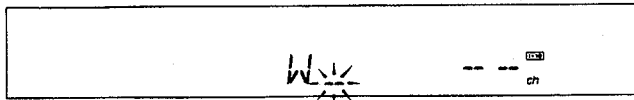


3. Press the TUNING UP key twenty-three time to select "W".
A→B→C→D→E→F→G→H→I→J→K→L→M→N→
O→P→Q→R→S→T→U→V→W

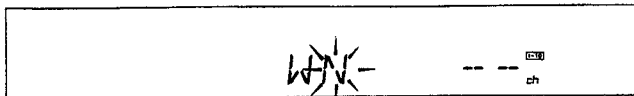


CONTROLS AND INDICATORS

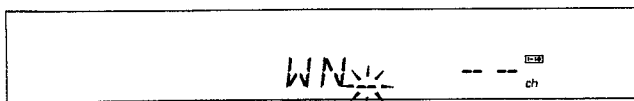
4. Press the DIGIT key.



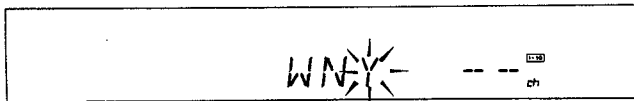
5. TUNING UP key fourteen times to select "N".
A→B→C→D→E→F→G→H→I→J→K→L→M→N



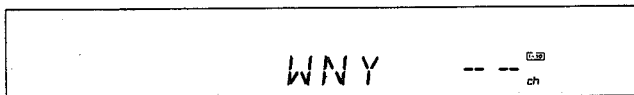
6. Press the DIGIT key.



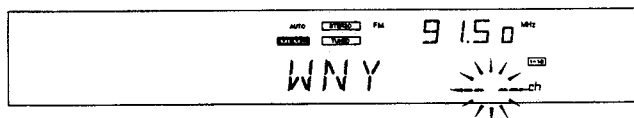
7. TUNING UP key twenty-five times to select "Y".
A→B→C→D→E→F→G→H→I→J→K→L→M→N→
O→P→Q→R→S→T→U→V→W→X→Y



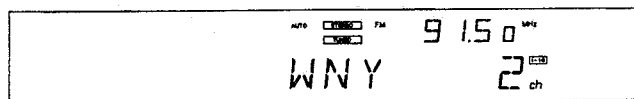
8. As the fourth column should be left blank, press the DIGIT key twice or press the CHARACTER key.



9. Press the MEMORY key.



10. Press channel 2 of the preset channels

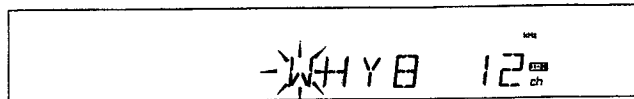


Example 2: To change the station name from "WHY8" for 810 kHz AM broadcast memorized in 12 preset channel to "W, G, Y".

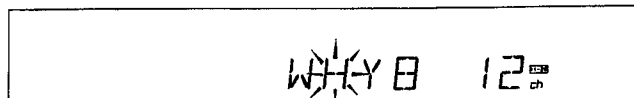
1. Recall the 12 preset channel with the PRESET 1-10/11-20 switch and the PRESET-key according to "Recalling the Preset Memory".



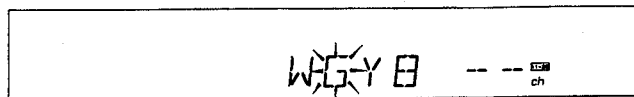
2. Press the CHARACTER key.



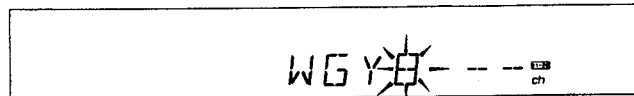
3. Press the DIGIT key to shift the flashing character to the next column since the first character "W" should be left as it is.



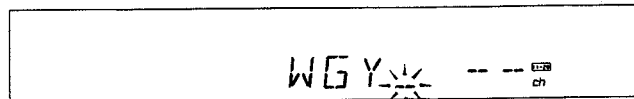
4. Press the TUNING (DOWN) key to select "G".
H→G



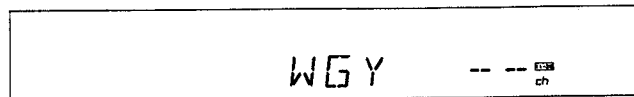
5. Press DIGIT key twice.



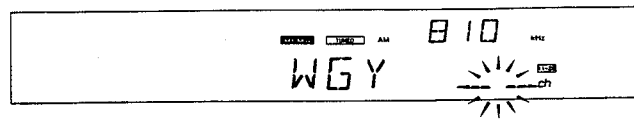
6. Press the TUNING key to select a blank.



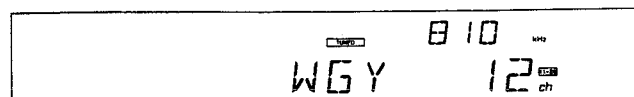
7. Press the DIGIT key or press the CHARACTER key.



8. Press the MEMORY key.



9. Press channel 12 of the preset channels.



CONTROLS AND INDICATORS

■ Listening to a preset station

1. Press the preset function key to select "1-10" or "11-20".
2. Press a numeric key under which memory has been preset.
3. Adjust the VOLUME control to the required listening level and use the graphic equalizer control to adjust the sound to your own preference.

■ Listening to record playing

1. Press the PHONO key of the INPUT SELECTOR switches.
 2. Operate the turntable to play back a record.
 3. Adjust the VOLUME control to the required listening level and use the graphic equalizer control to adjust the sound to your own preference.
- With a turntable that is connected to this unit with a System Control cord, the convenient System Control operations are available. For details on this, refer to "System Control Operation" on page 20.

■ Listening to the program source connected to the CD or AUX jacks

1. Press the CD or AUX key of the input selector switches.
 2. Operate the component connected to the CD or AUX jacks.
 3. Adjust the VOLUME control to the required listening level and use the graphic equalizer controls to adjust the sound to your own preference.
- With a CD-player that is connected to this unit with a System Control cord, the convenient System Control operations are available. For details on this, refer to "System Control Operation" on page 20.

■ Tape deck operation

1. Press the appropriate TAPE key of the input selector switches (1 or 2) to select output from a tape deck connected to the TAPE 1 or 2 jacks.
 2. Operate the tape deck.
 3. Adjust the VOLUME control to the required listening level and use the graphic equalizer controls to adjust the sound to your own preference.
- With a tape deck (connected to the TAPE 1 jacks) that is connected to this unit with a System Control cord, the convenient System Control operations are available. For details on this, refer to "System Control Operation" on page 20.

Note:

When both key (TAPE-1 and TAPE-2) are pressed, TAPE-2 setting has priority.

Recording

1. Press the appropriate key of the INPUT SELECTOR switches.
2. Set up your tape deck(s) for recording and set the recording level with the controls on your tape deck(s).
3. Adjust listening level at the unit to suit your listening preference.

Note:

When a tape deck is connected to this unit with a System Control cord, all of the input selector switches are disabled during recording and do not function until recording is finished. This will prevent the recording from being interrupted.

Tape dubbing

Tape recordings may be duplicated (dubbed) easily using two tape decks connected to the TAPE 1 and 2 jacks.

For example:

(TAPE 1 to 2);

1. Connect two tape decks to the TAPE 1 and TAPE 2 jacks
2. Press the TAPE 1 switch.
3. Play back the recorded tape and adjust the recording levels before starting tape dubbing.

(TAPE 2 to 1);

1. Press the TAPE 2 switch.
2. Press a key except TAPE 1 of the INPUT SELECTOR switches such as AUX.
3. Play back the recorded tape and adjust the recording levels before starting tape dubbing.
4. Do not press the TAPE 1 switch during recording with tape deck 1.

Note:

Adjust record levels on the deck that is making the copy using that deck's operating controls.

CONTROLS AND INDICATORS

■ VIDEO deck operation

Listening to video recorder audio sound

1. Press the appropriate VIDEO (1, 2) key of the INPUT SELECTOR to select output from a video recorder connected to the VIDEO (1, 2) jacks.
2. Operate the video recorder.
3. Adjust the VOLUME controls for your preference.
4. When a video monitor is connected to the VIDEO MONITOR OUT jack on the rear panel, the picture from the recorder can also be monitored.

Dubbing between two VCRs

Video dubbing can be performed while listening to any desired source.

With this set, through dubbing from **VCR 2** to **VCR 1** is possible.

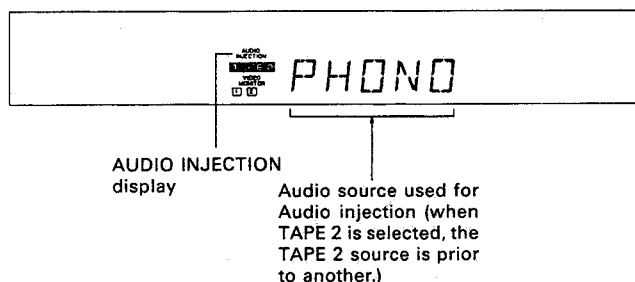
To operate, set the **VCR 1** video deck to record-pause mode and set the **VCR 2** video deck to playback mode. At the same time as the **VCR 2** video deck starts to play, the record-pause mode of the **VCR 1** video deck is released and recording starts.

Audio injection

During video dubbing, the sound from the VCR can be replaced with the desired audio source without affecting the picture.

At this, graphic equalizer can be applied to the recording audio source.

1. Press the AUDIO INJECTION switch so that the "AUDIO INJECTION" display is illuminated.
2. Select the desired audio source for Audio injection with the INPUT SELECTOR.
3. When equalizer compensation is required when recording a desired audio source with audio injection ON, press the EQ.REC key.
- The **EQ REC** indicator lights up.
- Set the equalizer controls as desired.
4. Operate each VCR for dubbing.



■ Graphic equalizer operation

Normal operation

1. Select the desired source.
2. Press the equalizer (EQ. ON) key to ON.
- The **EQ** ON indicator lights up in the display window.
3. Press the equalizer level control UP DOWN keys so that the equalized sound is heard from the speakers as desired.

Preset procedure

Use EQ PRESET key to store equalizer curves in memory or to recall them. (Five different equalizer curves can be stored.)

1. Select the desired source.
2. Press the equalizer (EQ. ON) key to ON.
3. Set the your desired equalizer curve.
4. Press the MEMORY (EQ) key.
5. Press the desired EQ PRESET keys (M-A ~ M-E) to store the equalizer curve.

Preset operation

The preset memory of this unit is available in two types the "PGM" memory in which the user-created desired sound response can be preset, and the "SET" memory in which the factory-preset sound equalizer curves are prepared. Use them by referring to "Characteristics of the SET preset memories".

1. Select SET or PGM.
- The previously selected equalizer curve of the preset channel is displayed.
2. Select preset key

Characteristics of the "SET" preset memories

- A: For solid and punchy sound.
- B: For effective reproduction of the dynamic movie sound.
- C: For easy to listen background music.
- D: For musical sound reproduction in a sense of lively
- E: For reproducing the vocal music realistically.

EQ REC switch

Press this switch, signals will allow equalized to be recorded on TAPE 1. If you wish to record non-equalized signals with the equalizer switch in the ON position, turn the equalizer recording switch to OFF. This will allow you to hear the equalized signals while recording non-equalized signals.

Note:

The equalized signal is not output at TAPE 2 REC jacks.

CONTROLS AND INDICATORS

■ Surround operation

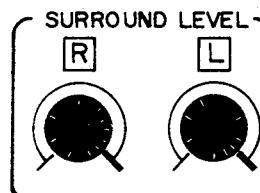
DOLBY SURROUND (KR-V87R without E type)

1. Set the SURROUND key to ON.
- The DOLBY SURROUND indication which is marked on the key lights.
- The input selector on the display window shows "DOLBY" for about 5 seconds.



2. Select the source which is desired to be expected for Dolby-surround sound effect, and play it.
3. Adjust the volume control and balance between the front speakers and the rear speakers by controlling the MAIN and REAR VOLUME control key.
- The MAIN VOLUME control allows you to increase or decrease the volume level for both the front and rear channels simultaneously.
- The REAR VOLUME control range is ± 20 dB of the frontspeaker level.

The SURROUND LEVEL controls located on the rear panel are set to its maximum position normally. However, if the left/right balance is shifted incorrectly, first set the SURROUND mode to the DOLBY position and reproduce the monaural source to adjust so that no sound is heard from the rear speakers.



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CONTROLS AND INDICATORS

■ System Memory

The required playback condition can be stored in memory for each music program (tape, compact disc, phonograph record (disc) or broadcasting program), so that the same volume level, the same balance (between front and rear channels), and the same equalizer pattern, etc. can be recalled at any time instantly.

Two types of settings can be stored in memory, and by pressing the SYSTEM MEMORY (M-1 or M-2) key you can recall the preset sound field condition instantly.

Stored contents:

The stored contents in the System Memory are as follows:

- Input selector (CD, PHONO, TUNER, TAPE, VIDEO, etc.)
- Preset channel in the TUNER position
- Audio injection
- EQ. key setting (ON/DEFEAT)
- EQ. REC key setting (ON/OFF)
- Preset channel of the equalizer pattern
- SURROUND setting (ON/OFF)
- Front-channel volume level
- Rear-channel volume level (KR-V87R)
- Front-channel balance control setting

How to preset the System Memory:

1. Set the playback conditions as required.
- When selecting the tuner or equalizer, be sure to designate the preset channel.
2. Press the SYSTEM MEMORY key.
- The display shows "SYS M-" for about 5 seconds.
- When "SYS M" is blinking in the display, the tuner or equalizer pattern is not preset in memory. After presetting the playback condition for each channel, press the MEMORY key again.

How to recall System Memory:

1. Press the M-1 or M-2 key.
- The display shows "SYS M-1" or "SYS M-2" for about 1 second, and the settings of each section are changed to the preset contents.
2. Readjust the setting of each section as required.
- When PHONO is selected for the input selector, with a system-controlled turntable connected, the turntable will automatically start playing by recalling the System Memory. Therefore, be sure to set the record on the platter of the turntable before activating the System Memory function.
- In the same way, when a system-controlled tape deck or CD player is connected to this unit, the tape deck or CD player can be started automatically by activating this System Memory function.

Note:

1. Do not set the volume controls to an excessively high volume level. It may not only astonish the listener, but it may also damage the speaker or amplifier.
2. If the contents of the preset channel is changed after designating the tuner or equalizer section channel for System Memory, the contents of the System Memory channel will also be changed.

■ System control operation

Connection

Using the system control cord provided with the system component models as below, make connections as shown on page 7.

The following models are available for the system control operations.

Turntable:	KD-77F, KD-67F or KD-47F
Cassette deck:	KX-97CW, KX-77CW KX-67W or KX-87CR
CD player:	DP-87, DP-57, DP-47, DP-M107R, DP-M97 or DP-M97R

Note:

Some models provide two or three system control jacks. However, when used with this receiver, be sure to connect the system control cord to the jack having a indication of ①.

Operation

1. Automatic play operation

When starting play with the turntable, cassette deck or CD player connected to the receiver, press the desired INPUT SELECTOR switch on the receiver. The turntable, cassette deck or CD player will automatically enter the play mode.

In the same way, pressing the Play key of the turntable, cassette deck or CD player will automatically switch the INPUT SELECTOR on the receiver to the equipment on which the Play key is pressed.

2. Synchro recording

To record the sound from the turntable or CD player onto the tape with the cassette deck, press the PLAY (START) key of the turntable or CD player. The cassette deck will start recording automatically, synchronized with the turntable or CD player starting play. For more details, refer to the instruction manual of the cassette deck.

3. Remote control

When the remote control unit provided with this unit, to which the turntable, cassette deck or CD PLAYER is connected, is equipped with related control keys, the related components can be controlled using these keys.

Note:

During recording with the cassette deck, the INPUT SELECT on the receiver is fixed at the source from which the recording is made, by the system control circuit. At this time, pressing any of the INPUT SELECTOR keys does no function even when it is pressed.

CONTROLS AND INDICATORS

■ Operations

1. Connect the power plug of this unit to an AC outlet.
- This main frame enters the power standby mode and the POWER STANDBY indicator lights.
2. Press the POWER key of remote control unit or the POWER switch of this unit.
- This unit enters the power ON mode.
3. Operates with the keys of remote control unit.

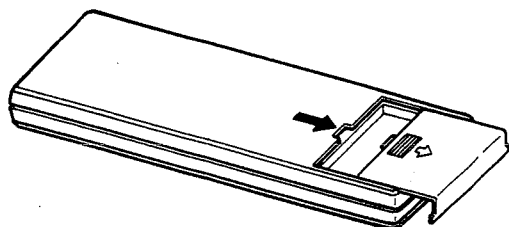
Note for remote control operation

After pressing one of operation keys, when the next operation is required, press the next operation key firmly after approx. 1 second interval.

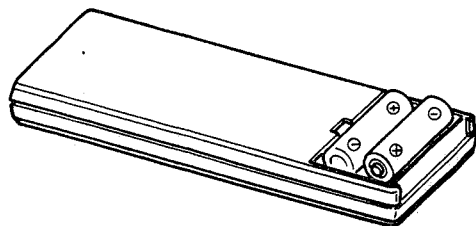
When the next operation key is pressed immediately after the previous key, it may cause misoperation.

■ Installing the battery on the remote control unit

1. Remove the battery compartment cover.



2. Insert two size "AA" (R6) batteries confirming the correct polarity and close the cover in its place.



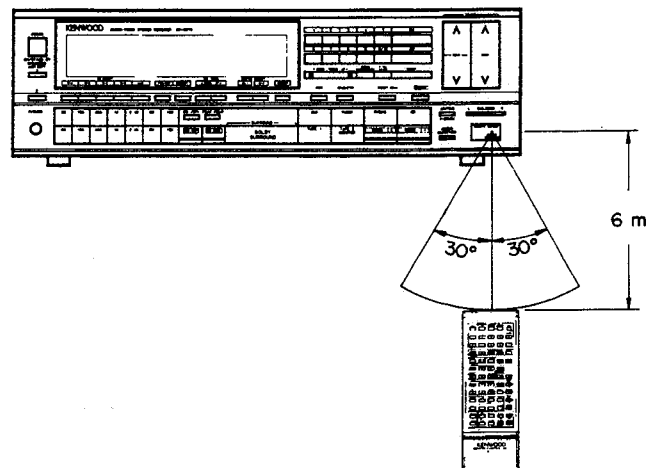
Note:

The provided batteries are to be used for operation of the remote control unit, and it may have shorter life. When the remote unit becomes effective only for shorter distance or does not operate, replace them with two new batteries.

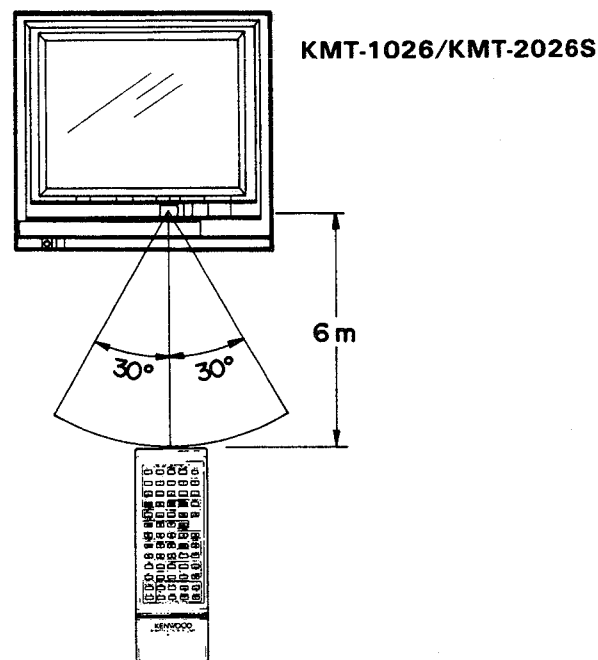
■ Usable range of remote control unit

The usable range of the remote control unit may differ on temperature, humidity or using conditions, however, it is defined approximately as shown in the figure below:

For controlling audio

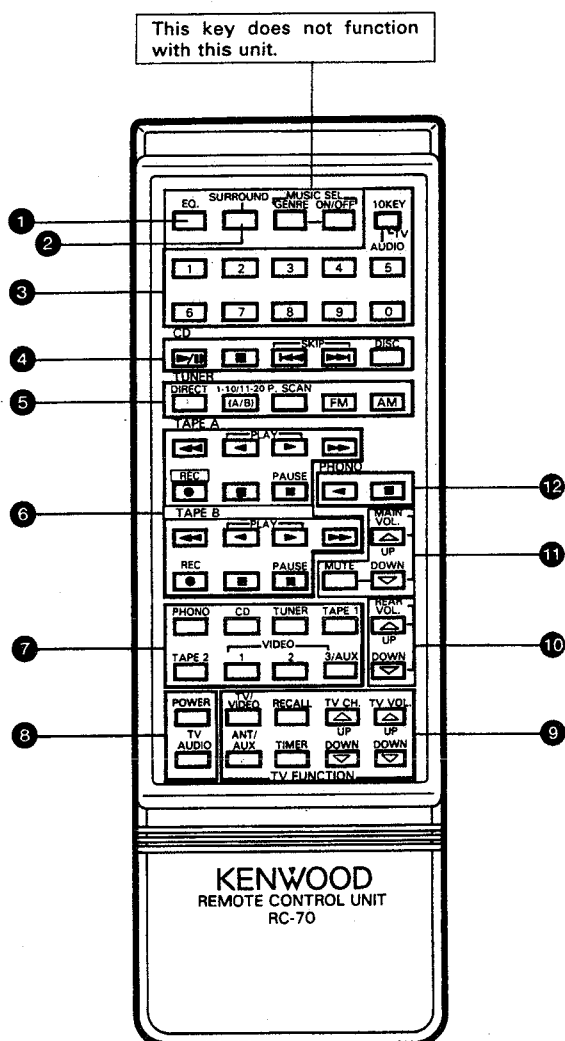


For controlling TV set



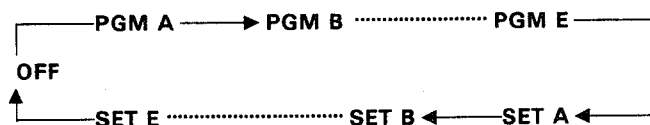
CONTROLS AND INDICATORS

■ Control keys



① Equalizer preset keys (EQ)

The 5 "PGM" presets and the 5 "SET" presets—total of 10 equalizer preset patterns can be recalled sequentially.



② Surround key

This key is used to turn the surround system ON or OFF.

③ 10-KEY

AUDIO: 10-key direct operation is possible only for tuner and CD player.

(For example: When "7" is pressed while listening to track No. 4 of CD player, the track No. is changed to 7.)

TV: 10-key direct operation is possible only for TV. Use buttons "0-9" in combination for direct channel selection regardless of any previous memory settings or functions. Generally, key in channel numbers in two digits for speedy operation. To key in lower channel numbers from 2-9, key in "0", then the channel number. (For example, to tune in channel 9 directly, key in "0", then "9", for channel 23, key in "2", then "3", etc.) (U.S.A. only)

④ Compact disc player (DP-87/DP-57/DP-47/DP-M107R/DP-M97R/DP-M97) operation keys (CD)

Play/pause key (▶/||)

When this key is pressed with a compact disc loaded in the compact disc player, the disc is played. (Same function as the play key on the compact disc player.)

When this key is pressed during play, the player enters the pause mode. To release pause mode, press it again.

Stop key (■)

Press to cancel all operations. The pickup returns to the beginning of the first tune and the player enters the standby mode. (Same function as the stop key on the compact disc player.)

Music skip key (▶▶)

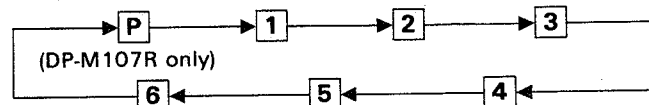
Press to skip to the beginning of the next tune. The pickup is advanced to the forward tunes by the number of times it is pressed. (Same function as the music skip key on the compact disc player.)

Music skip key (◀◀)

Press to return to the beginning of the current tune. Pressing it again returns the pickup to the beginning. When the key is continuously pressed, the pickup returns to the backward tunes by the number of times it is pressed. (Same function as the music skip key on the compact disc player.)

DISC select key

When a multiple CD player (DP-M107R, DP-M97R, DP-M97) is connected, this key selects one of six CDs sequentially in a cycle.



⑤ Tuner operation keys (TUNER)

Direct

When this key is pressed, the unit is set to direct mode and the frequency of the desired station can directly be input using 10-key.

1 ~ 10/11 ~ 20 (A/B)

Each time this button is pressed, the preset station range is changed.

P. SCAN

When this key is pressed, the preset station are automatically received from A-1 for a specified time.

Band select keys (FM/AM)

Select the desired band for broadcast listening. (Same function as the band selector on the tuner)

CONTROLS AND INDICATORS

⑥ Cassette deck operation keys (KX-97CW, KX-77CW, KX-67W TAPE A/B) (KX-87CR TAPE B only)

Stop key (■)

Press to stop tape running.

Rewind key (◀◀)

Press to fast-wind the tape to the left reel.

Fast-forward key (▶▶)

Press to fast-wind the tape to the right reel.

Reverse Play key (◀)

Press to start playback in reverse direction. (Rear side playback)

Play key (▶)

Press to start playback in forward direction. (Front side playback)

Pause key (||)

Press to stop play back or recording momentarily.
The function of the PAUSE key.

Record key (REC) (●)

Press to start recording.

⑦ Input selector keys

PHONO: To listen to a source from the turntable connected to the PHONO jacks, press this switch.

CD: To listen to a source from the CD player connected to the CD jacks, press this switch.

TUNER: To listen to a source from the tuner connected to the TUNER jacks, press this switch.

TAPE-1: To listen to a source from the tape deck connected to the TAPE 1 jacks, press this switch.

TAPE-2: To listen to a source of the tape deck, etc., connected to the TAPE 2 jacks, press this switch.

VIDEO 1: To listen to a source from the equipment connected to the VIDEO 1 jacks, press this switch.

VIDEO 2: To listen to a source from video cassette recorder connected to the VIDEO 2 jacks.

VIDEO 3/AUX: To listen to a source from the equipment connected to the AUX jacks.

⑧ POWER switch

Press to turn the power on for whole system.

AUDIO: Press to turn the stereo system ON. Press again to turn the stereo system OFF.

TV (KMT-1026, KMT-2026S): Press to turn the TV ON. Press again to turn the TV off.

⑨ TV (KMT-1026, KMT-2026S) operation keys (TV FUNCTION) (U.S.A. only)

Note: With the supplied remote control unit, only KMT-1026, KMT-2026S (monitor TV) can be operated.

TV/VIDEO key

Use this key to select the type of signal that the monitor will receive: TV, VIDEO 1 or VIDEO 2.

RECALL key

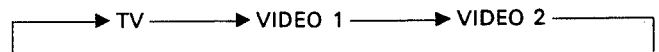
Press the recall key and both the time and channel will be displayed continuously. Press it again and they will disappear. The timer function can be utilized as well but the time will not continuously be displayed.

Channel tuning UP/DOWN keys (TV CH.) (Δ/▽)

Press the channel up (Δ) key to tune in higher channels, and the channel down (▽) key to tune in lower channels. Press the key continuously until the channel number you wish to receive appears on the upper right side of the screen.

ANT/AUX key

Press this key to set the ANT and AUX indicator to agree with the antenna input source.



Note:

Switching between TV and VIDEO etc., described above is not related to the function of this receiver should be effectuated or the TV set.

TIMER key

Press the timer key to set desired time.

TV VOL. keys (UPΔ/DOWN▽)

Apply steady pressure to the VOLUME UP or DOWN buttons, to increase or decrease the volume as desired.

⑩ REAR VOL. keys (UPΔ/DOWN▽)

Apply steady pressure to the REAR VOLUME UP or DOWN key to increase or decrease the volume as desired.

⑪ Volume control keys (MAIN VOL.) (UPΔ/DOWN▽)

Controls the volume of the speakers and headphones. Press the UP (Δ) key to increase the volume level and, press the DOWN (▽) key to decrease it.

Muting key (MUTE)

Press to decrease the volume level instantaneously. Pressing it again resumes the previous volume level. When this key is pressed, volume level is decreased. The MUTING indicator blinks.

⑫ Turntable operation keys (PHONO)

Play key (◀)

Press to start record play automatically.

For KD-67F, select the record size, before starting play with this key.

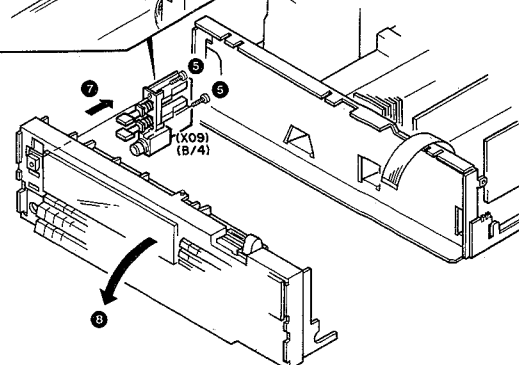
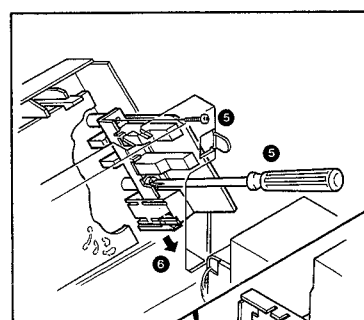
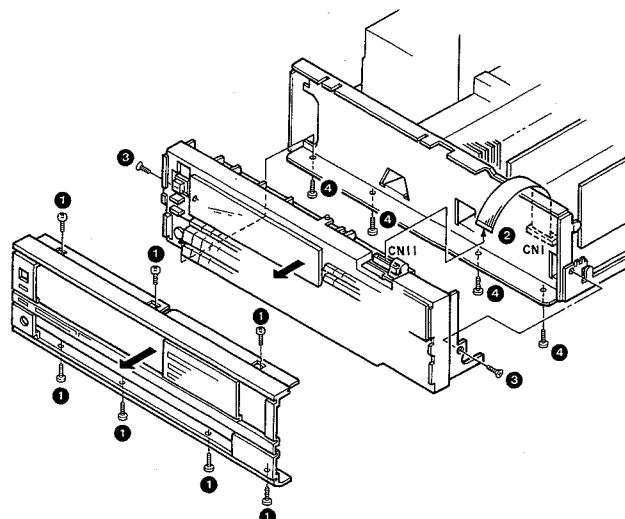
Stop key (■)

Press to stop play; the tonearm returns to the rest and the platter stops rotating.

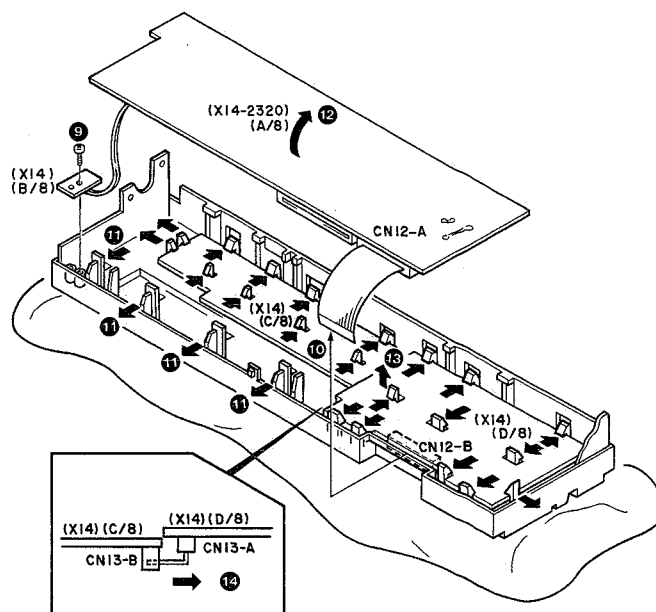
DISASSEMBLY FOR REPAIR

Remove the case prior to the following operations.

1. Remove the 3 screws from the upper side of the front panel, and the 4 screws from its lower side (1), and then take off the front panel.
2. Disconnect the parallel cable from CN11 (2), and remove the 2 screws (3) on the side of the sub-panel. Then, remove the 4 screws (4) retaining the sub-panel from its bottom, and tilt the sub-panel slightly in the direction of the arrow.
3. Remove the 2 screws (5) holding the (X09-) (B/4) PC board to the rear of the chassis, disengage the claw (6) below the PHONES jack, and then take out the PC board in the direction of the arrow (7).
4. Tilt the sub-panel in the direction of the arrow (8).
(To prevent damage to the sub-panel, place a cloth under it.)



5. Remove the screw (9) holding the (X14-) (B/8) PC board, and then take out the PC board.
6. Disengage the parallel cable (10) from CN12-B, disengage the 4 claws (11), and then take out the (X11-2320) (A/8) PC board in the direction of the arrow (12).
7. Disengage the 21 claws retaining the (X14-) (C/8) and (X14-) (D/8) PC boards, and then take out both PC boards together in the direction of the arrow (13).
(The two PC boards are coupled via connectors.)
8. When it is required to separate the (X14-) (C/8) and (X14-) (D/8) PC boards, disconnect the connectors in the direction of the arrow (14).





CIRCUIT DESCRIPTION

Description of Components

TUNER UNIT (X05-353X-XX) 0-10 : K, P 0-81 : U, UE 2-71 : E

Component	Use/Function	Operation/Condition/Compatibility
Q1	FM IF amp.	
Q2, 3	LPF (Low Pass Filter)	
Q4	Buffer	For the E version only.
Q5, 6	Emphasis select	75 μ s when ON, 50 μ s when OFF.
Q7, 8	+B power supply select	Q7 : FM + B (ON in FM mode), Q8 : AM + B (ON in AM mode).
IC1 (LA1265)	FM IF/AM detection	
IC2 (LM7001)	PLL (Phase Locked Loop)	
IC3 (AN7470)	MPX (Multiplexer)	

POWER AMPLIFIER UNIT (X07-253X-XX) 0-14 : K, P, U, UE 2-72 : E

Component	Use/Function	Operation/Condition/Compatibility
Q1 ~ 4	Primary stage voltage amp.	
Q5 ~ 8	Primary stage cascode amp.	
Q9 ~ 12	Secondary stage voltage amp.	
Q13 ~ 16	Third stage voltage amp.	
Q17, 18	Third stage cascode amp.	
Q19, 20	Third stage current mirror	
Q21 ~ 24	Power amp. driver	
Q25, 26	Protection, current detection	Positive (+) side.
Q27, 28	Protection, current detection	Negative (—) side.
Q29	Protection	Transmits the current detected signal to IC1.
IC1 (μ PC1237HA)	Protection	Relay drive.

AUDIO UNIT (X09-265X-XX) 0-10 : K, U, UE 1-01 : P 2-71 : E

Component	Use/Function	Operation/Condition/Compatibility
Q1, 2	Muting	For MUTE 1.
Q3, 4	Muting	For MUTE 2.
Q5 ~ 8	Final transistor	
Q9, 10	For bias compensation	
Q11	Muting	For the surround channel.
Q12, 13	Class-A primary differential amp.	Surround amp. Compatible with 2SA933S.
Q14	Class-A pre-driver	Compatible with 2SC1740S.
Q15	For bias compensation	Surround amp.
Q16, 17	Pre-driver	Surround amp.
Q18, 19	Final transistor	Surround amp.
Q20	Current detection	Current detection for the final transistor of the surround circuit. Compatible with 2SC1740S.
Q21	Protection	Turns ON when Q20 is ON to turn the surround output relay OFF. Compatible with 2SA933S.
Q22	Constant voltage circuit	Constant voltage circuit for the output relay and the surround output relay.
Q24	Transistor switch	Turns ON when Q21 is ON or Q23 is ON, to turn Q25 OFF. Compatible with 2SC1740S.
Q25	Transistor switch	Drives Q26 to turn the output relay and the surround output relay ON and OFF.
Q26	Relay drive transistor	Driver transistor for the output relay and the surround output relay.
Q27 ~ 29	Constant voltage circuit	For the —12V power supply.
Q30	Constant voltage circuit	For the —30V power supply.
Q31	—30V ON/OFF switch	Turns ON immediately after power ON, and when power is OFF, to turn the —30V OFF.
Q32	Muting driver	Turns Q1 and Q2 ON/OFF. Compatible with 2SA933S.
Q33	Muting driver	Turns Q3, Q4 and Q11 ON/OFF. Compatible with 2SA933S.

CIRCUIT DESCRIPTION

Component	Use/Function	Operation/Condition/Compatibility
Q34	Video buffer for REC OUT	
Q35	Video buffer for MONITOR OUT	
Q36	Surround ON/OFF switch	Turns ON when surround mode is engaged to turn Q11 OFF. Compatible with 2SC1740S.
Q37	Surround lamp driver	Turns ON when surround mode is engaged.
Q38	Switch for VIDEO 1	Turns ON when VIDEO 1 is selected to select IC4.
Q39	Switch for VIDEO 2	Turns ON when VIDEO 2 is selected to select IC4.
Q40	MONO/ST select switch	Turns ON when MUTE 1 is at a high level, or when forced MONO is selected. Compatible with 2SC1740S.
Q41	Muting for the CLK	Cuts the CLK line except when the CLK for the tuner is at a high level.
Q42	Muting for DATA	Cuts the DATA line except when the CLK for the tuner is at a high level.
Q43	Ripple filter	For Tuner unit (X05-).
IC1 (NJM4558D-A)	Equalizer amp.	
IC2 (TC9164N)	Selector	SOURCE select, TAPE 2 select, GE (Graphic Equalizer) ON/OFF select.
IC3 (TC9162N)	Selector	GE REC select, AI (Audio Injection) select.
IC4 (LC4966)	Selector	VIDEO 1/2 select.
IC5 (NJM4558D)	Buffer amp. for VIDEO 1 and REC OUT	Compatible with M5218P.
IC6 (TC9176P)	Electronic VR	Front speaker volume.
IC7 (NJM4558D-A)	Buffer amp. for the electronic VR	Compatible with NJM4560D.
IC8 (TC9176P)	Electronic VR	For the surround amp., for the spectrum analyzer level.
IC9 (NJM4558D)	Buffer amp. for the electronic VR	Compatible with M5218P.
IC10 (μ PC7812HF)	Constant voltage power supply	3-pin regulator for the +12V constant voltage power supply.

DISPLAY UNIT (X14-232X-XX) 0-10 : K, P 0-81 : U, UE 2-71 : E

Component	Use/Function	Operation/Condition/Compatibility
Q1	Reset circuit	
Q2	FIP grid current buffer	
Q3	Video buffer	
Q9, 10	5V power supply	
Q11 ~ 13	Relay driver circuit	
Q14 ~ 17	LED driver circuit	Positive logic.
Q18	Video buffer	
IC1 (μ PD75108CW-200)	Microprocessor	
IC2 (μ PD6330C)	Static driver	FIP driver.
IC3 (LC7565)	Spectrum analyzer display driver	FIP driver.
IC4 ~ 7 (μ PA80C)	Transistor array	FIP driver (Negative logic).
IC8, 9 (μ PC4574C)	BPF (Band Pass Filter) for spectrum analyzer	
IC10 (μ PD4081BC)	Data mute	Data transfer select for the VOL IC and SW IC.
IC11 (MN3101)	Clock for the BBD	
IC12 (MN3007)	BBD (Bucket Brigade Device)	
IC13 (NE645N)	Dolby surround IC	
IC14 (PST529C)	Reset IC	
IC15 (NJM4558D)	Buffer amp.	
IC16 (NJM4558D)	Buffer amp. (1/2), L/R mixing amp. (2/2)	
IC17 (NJM4558D)	Buffer amp. (1/2), Filter (2/2)	
IC18 (NJM4558D)	Output amp. (1/2), Filter (2/2)	

EQUALIZER UNIT (X85-1120-10)

Component	Use/Function	Operation/Condition/Compatibility
IC1 (LC7522)	Electronic VR array for the graphic equalizer	
IC2, 3 (M5229P)	Op-amp. for the graphic equalizer	Semiconductor inductor x 7.



CIRCUIT DESCRIPTION

● Version /Model Set up

Setup of the version of the model for each area is performed by the initial setup diode matrix.

Set to "1" when diode is provided, or "0" when not provided.

1) Version setup switch

Version setup switch	Version (Area)	Band	Receiving frequency range	Channel spacing	Reference frequency
0	K	FM	87.5 ~ 108.0MHz	100kHz	50kHz
		AM	530 ~ 1610kHz	10kHz	10kHz
1	E	FM	87.5 ~ 108.0MHz	50kHz	50kHz
		AM	531 ~ 1602kHz	9kHz	9kHz

2) Model setup switch (TYP1, TYP2)

Model setup switch		Model	Function		
TYP1	TYP2		Dolby surround	Speaker matrix	Spectrum analyzer display (SPI)
1	1	KR-V87 (K)	○	X	○
1	0	KR-V77 (K)	X	○	X
0	1	KR-V87 (E)	X	X	○

○ : Available, X : Not available

● Switch IC CLK (15), DATA (14), ST (13)

	S1	S2	S3	S4	S5	S6	S7	S8
TC9164N	CD	AUX	PHONO	TUNER	TAPE 2 OFF	TAPE 2 ON	EQ OFF	EQ ON
TC9162N	EQ REC OFF	EQ REC ON	AUDIO INJECTION	AUDIO INJECTION	TAPE 1	VIDEO 1 VIDEO 2	AI	—
	Open when TAPE 1 is turned ON.		EQ REC ON	EQ REC OFF				
			Open when A.I. is turned OFF.					

● Static Driver IC : μ PD6300C CLK (12), DATA (11), LH (10)

Output	O0 (15)	O1 (16)	O2 (17)	O3 (18)	O4 (19)	O5 (20)	O6 (21)	O7 (22)	O8 (23)	O9 (24)
Display	ch.	11-20	1-10	AM, kHz	FM, MHz				AUTO	DEFEAT
Terminal	S1 (24)	S2 (25)	S3 (26)	S4 (29)	S6 (31)	S7 (34)	S8 (35)	S9 (36)	S12 (39)	S13 (41)
Output	O10 (25)	O11 (26)	O12 (27)	O13 (1)	O14 (2)	O15 (3)	O16 (4)	O17 (5)	O18 (6)	O19 (7)
Display	ON	AUDIO INJECTION	VIDEO	VIDEO	TAPE 2	*REAR V VOL.	FRONT V VOL.	FRONT VOL.	*REAR VOL.	*SURROUND
Terminal	S14 (42)	S15 (43)	S17 (45)	S18 (46)	S16 (44)	LED	LED	LED	LED	LAMP

Positive logic is used.

* : Without E type

● PLL IC : LM7001 CLK (2), DATA (4), CE (3)

	BO1 (7)	BO3 (9)
FM	1	0
AM	0	1
Except TUNER	0	0

	BO2 (8)
AUTO	0
MONO	1

0 : Short, 1 : Open

● Volume IC : TC9176P CLK (8), DATA (9), ST (10)

The FRONT volume control uses the same IC with reversed L/R channel connections.

The R-channel of the rear volume control is also used to control the Surround (rear-channel) speaker, while the L-channel is used to control the SPI (Spectrum Peak Indicator) level.

● Equalizer IC : LC7522

S (13) : VEE, CLK (17), DATA (16)

f7 = 60Hz, f1 = 15kHz

● EQ/SPI display IC : LC7565

S1 (15), S2 (16) : VDD, CLK (18), DATA (17)

f7 = 60Hz, f1 = 15kHz

CIRCUIT DESCRIPTION

• Terminal functions

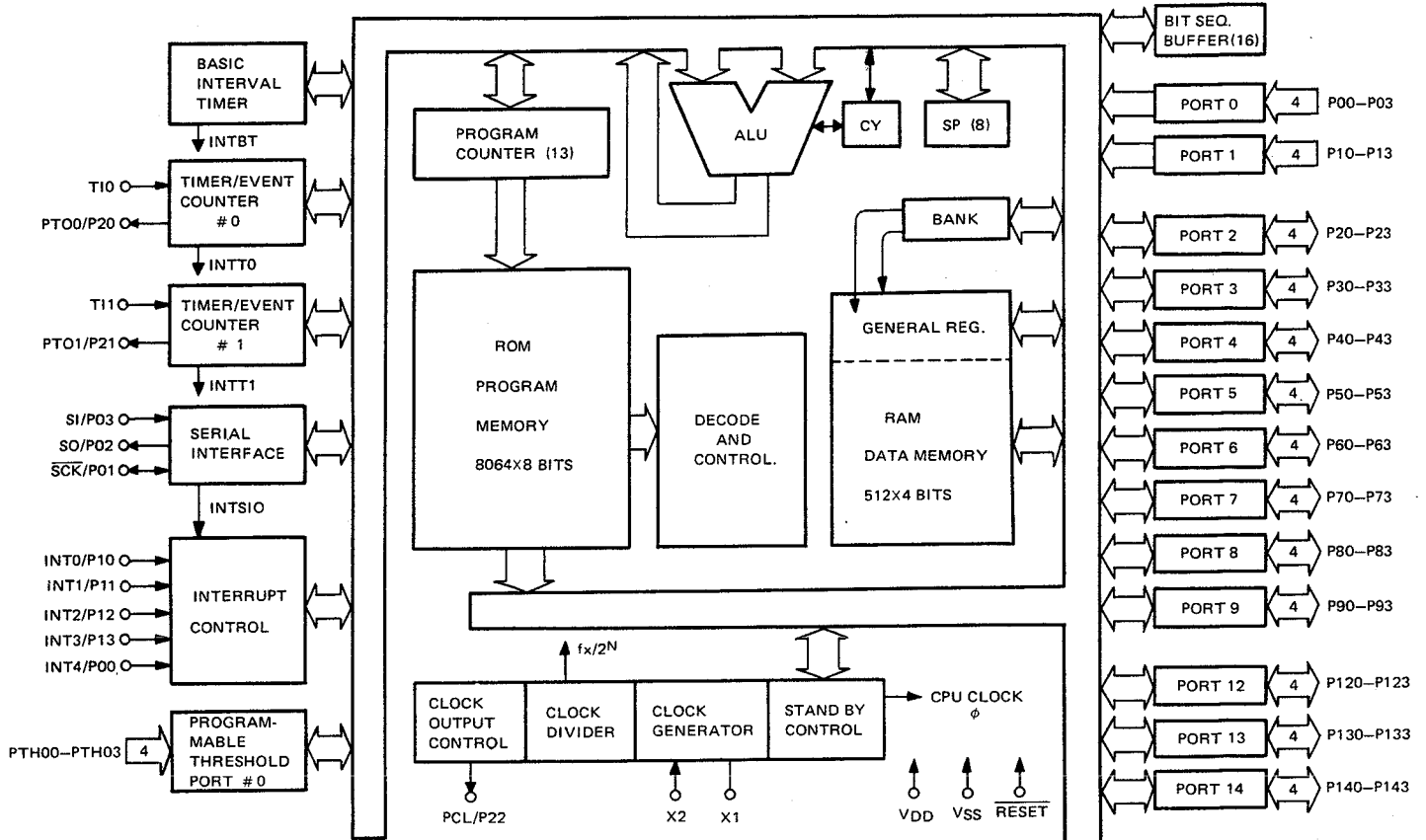
Pin No.	Pin name	I/O	Name	Description
1	P13/INT3	I	CE	Backup detection pin. When this goes low level, backup mode is set and the clock stops.
2	P12/INT2	I	SD	Station presence/absence detection signal input pin : Used in Auto Tuning and Preset Scan. High : Station is not present, Low : Station is present.
3	P11/INT2	I	Power Key	Key ON when high level at power key input terminal.
4	P10/INT0	I	Remocon Signal	Remote control signal input pin after detection : Inputs the remote control signal level in normal mode and when reading out the leader code. Detects the signal by interruption the rising edge when reading the data.
5 ~ 8	PTH03 ~ PTH00	I	Key Input	Key matrix return signal input : Normally high. (Threshold voltage = $V_{DD} \times 7.5/16$, Conversion time : 32.3 μ s.)
9, 10	TI0, TI1	I	Not used	No-connection input pin. Fixed at VDD or VSS.
11	P23	O (CMOS)	LC7565 CLK	Output pin to be connected to the CLK pin of LC7565. Normally low.
12	P22/PCL	O (CMOS)	Static Driver (μ PD6300C)	LH signal output pin for the Static Driver IC (μ PD6300C). Normally low, and high when data is output.
13	P21/PTO1	O (CMOS)	CLK	CLK signal output pin for μ PD6300C, TC9162N, TC9164N, TC9176P and LM7001. TC9176P, TC9162N and TC9164N are not directly connected to the CLK pin of each IC. For TC9176P, the VOL IC DATA MUTE signal ANDed with the signal from the CLK pin are input to the IC. For TC9162N and TC9164N the switch IC DATA MUTE signal ANDed with the signal from the CLK pin are input to the IC.
14	P20/PTO0	O (CMOS)	DATA	DATA signal output pin for μ PD6300C, TC9162N, TC9164N, TC9176P and LM7001. In the same way as the CLK signal, each DATA MUTE signal is ANDed with this signal and input to the IC for TC9176P, TC9162N and TC9164N.
15 ~ 18	P03/SI ~ P00/INT4	I	Key Input	Key matrix returns signal input pin : Normally high.
19	P123	O (N ch open drain)	PLL IC (LM7001) CE	CE signal output pin for the PLL IC (LM7001). Normally low, and high when data is output.
20	P122	O (N ch open drain)	Diode Switch Intake Signal	Strobe signal for the diode switch intake. Goes low momentarily immediately after Preset, after then it is always high.
21	P121	O (N ch open drain)	Switch IC (TC9162N, TC9164N) ST	ST signal output pin for the switch ICs (TC9162N and TC9164N). Normally low, and high when data is output in a moment. The microprocessor signal is input to the ST pin after differentiating.
22	P120	O (N ch open drain)	MUTE2	With the volume level of the front channel set to between 0 and -28dB, outputs the muting signal for a short period (about 10msec.) when the TAPE 2 ON/OFF, EQ ON/ OFF, EQ REC ON/OFF, surround ON/OFF, AUDIO INJECTION ON/OFF or input selector is switched. When the volume level of the front channel is set to $-\infty$ dB, outputs the muting signal.
23	P133	O (N ch open drain)	VOL IC ST (FRONT)	ST signal output pin of the Front IC for Vol. IC TC9176P. Normally low : Goes high momentarily when data is output. High when power is OFF.
24	P132	O (N ch open drain)	VOL IC ST (REAR)	ST signal output pin of the Rear IC for Vol. IC TC9176P. Normally low : Goes high momentarily when data is output. High when power is OFF.
25	P131	O (N ch open drain)	Switch IC DATA MUTE	Output pin for the signal which makes the DATA or CLK signal output from P21 and P20, so that the other IC does not input to the switch IC. This signal ANDed with the signal from P21, P20 are input to the Switch IC. High when power is OFF.
26	P130	O (N ch open drain)	EQ IC (LC7522) DATA	DATA signal input pin of EQ IC LC7522. High when power is OFF.

CIRCUIT DESCRIPTION

Pin No.	Pin name	I/O	Name	Description
27	P143	O (N ch open drain)	EQ IC (LC7522) CLK	CLK signal input pin of EQ IC LC7522. High when power is OFF.
28	P142	O (N ch open drain)	VOL IC DATA MUTE	Output pin for the signal which makes the DATA or CLK signal output from P21 and P20, so that the other IC does not input to the Vol. IC. This signal ANDed with the signal from P21, P20 are input to the Switch IC. High when power is OFF.
29	P141	O (N ch open drain)	MUTE1	Muting signal during tuner scanning when the input selector is changed. Normally low : Active high. High when power is OFF.
30	P140	O (N ch open drain)	-30V ON/OFF	-30V ON/OFF control signal output pin to light the EQ/SPI display and other display sections simultaneously. A high level signal is output about 500ms after the POWER pin (P31) goes high. Low when power is OFF.
31	NC			
32	VDD			Power supply pin.
33	P33	I/O (CMOS)	Serial DATA	DATA pin for system serial communication. Normally in input mode, and in output mode only when serial data is output.
34	P32	I/O (CMOS)	Serial BUSY	BUSY pin for system serial communication. Normally in input mode. Outputs a high level signal when serial data is output. Also provides the serial bus control function.
35	P31	O (CMOS)	POWER	Output pin for the power relay control : Active high. This is controlled by the POWER key. It alternates between high (Power ON) and low (Power OFF) each time the POWER key is pressed.
36	P30	O (CMOS)	$\overline{9G}$	FL digit control pin. Negative logic. Drives the FL display through an inversion buffer.
37	P43		$\overline{8G}$	
38	P42		$\overline{7G}$	
39	P41		$\overline{6G}$	
40	P40		$\overline{5G}$	
41	P53		$\overline{4G}$	
42	P52		$\overline{3G}$	
43	P51		$\overline{2G}$	
44	P50		$\overline{1G}$	
45	RESET	I		Input pin for the reset signal from the microprocessor.
46	X2			System clock oscillator pin (4.194MHz).
47	X1			
48	P63	O (CMOS)	$\overline{\text{Seg a, Key}}$	FL segment control pin. Negative logic. Drives the FL display through an inversion buffer. Key intake strobe signal output pin. Intakes each key press one by one during the display blanking period.
49	P62		$\overline{\text{Seg b, Key}}$	
50	P61		$\overline{\text{Seg c, Key}}$	
51	P60		$\overline{\text{Seg d, Key}}$	
52	P73		$\overline{\text{Seg e, Key}}$	
53	P72		$\overline{\text{Seg f, Key}}$	
54	P71		$\overline{\text{Seg g, Key}}$	
55	P70		$\overline{\text{Seg h, Key}}$	
56	P83		$\overline{\text{Seg i, Key}}$	
57	P82		$\overline{\text{Seg j}}$	
58	P81		$\overline{\text{Seg k}}$	
59	P80		$\overline{\text{Seg l}}$	
60	P93		$\overline{\text{Seg m}}$	
61	P92		$\overline{\text{Seg n}}$	
62	P91		$\overline{\text{Seg o}}$	
63	P90		$\overline{\text{Seg p}}$	
64	VSS			GND pin.

CIRCUIT DESCRIPTION

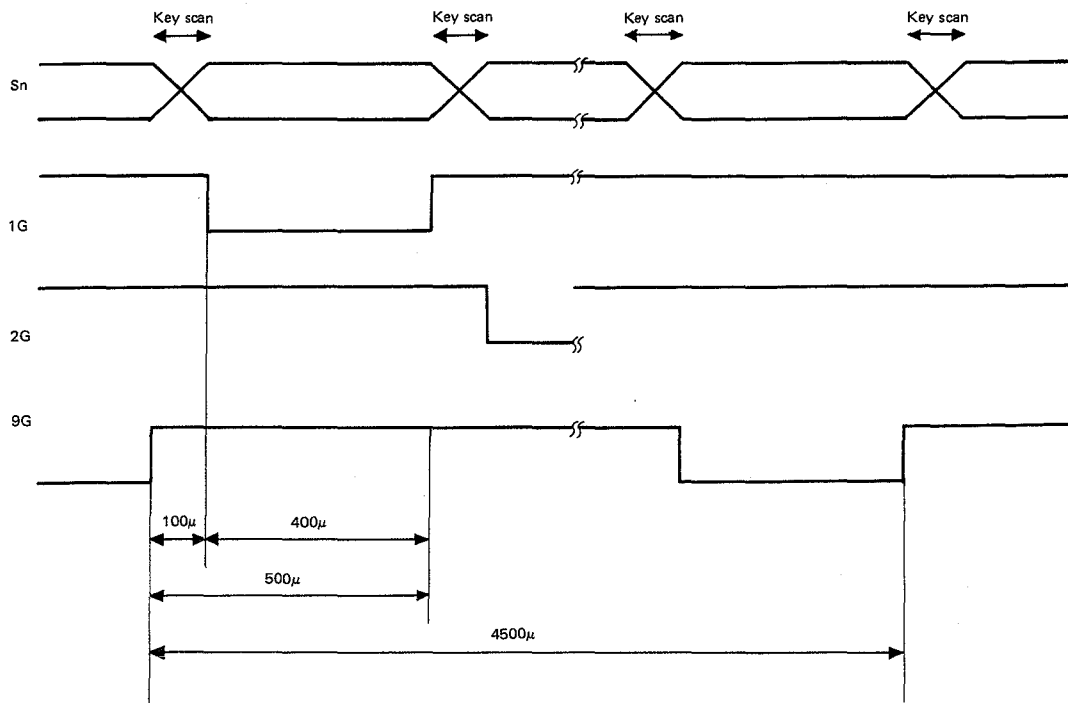
Block diagram



CIRCUIT DESCRIPTION

● Display Driver

The BG-526GK display is driven by attaching the inversion port to the output port of microprocessor μ PD75108CW. The time chart is as follows :



ON Time : 400 μ sec
 Blanking period : 100 μ sec
 DUTY = 1/11.25
 Scanning frequency : 222Hz

● Initial Status

1) Contents of the initial status

Function	Status
Amplifier (AMP) section	
AUDIO SELECTOR	TUNER
TAPE 2 MONITOR	OFF
VIDEO SELECTOR	VIDEO 1
VOLUME	-56dB
REAR VOLUME	± 0 dB
BALANCE	CENTER
AUDIO INJECTION	OFF
SURROUND	OFF
Equalizer (EQ) section	
EQ MEMORY MODE	PGM
EQ MEMORY PRESET	Not in PRESET recall status.
EQ	± 0 dB FLAT
EQ PGM MEMORY	± 0 dB FLAT
EQ ON/DEFEAT	DEFEAT
EQ REC ON/OFF	OFF
Display mode	SPI
Tuner section	
Receiving frequency	Lower limit of the FM frequency range.
TUNING MODE	AUTO
1-10/11-20	1-10
Power supply	OFF

2) Initial status setup

Setting of the initial status will be performed in a following cases :

1. When the memory contents backed up has been cancelled.
2. When the power cord is plugged into the AC outlet while the MEMORY key on the tuner is being depressed.

ADJUSTMENT

No.	ITEM	INPUT SETTINGS	OUTPUT SETTINGS	TUNER SETTINGS	ALIGNMENT POINTS	ALIGN FOR	FIG.
FM SECTION		SELECTOR: FM					
1	DETECTOR	(A) 98.0MHz 1kHz, ±175kHz dev 60dBμ(Ant input)	Connect a DC voltmeter between TP3 and TP4.	AUTO or MONO 98.0MHz	L4 (X05-)	0V	(a)
2	VCO	(A) 98.0MHz 0 dev 100dBμ(Ant input)	Connect a frequency counter between TP5 and GND.	AUTO 98.0MHz	VR3 (X05-)	19.00kHz	(b)
3	DISTORTION (STEREO)	(C) 98.0MHz 1kHz, ±68.25kHz dev Selector: L or R Pilot: ±6.75kHz dev 60dBμ(Ant input)	(B)	98.0MHz	IFT (Front end)	Minimum distortion.	
4	SEPARATION (E Type)	(C) 98.0MHz Stereo signal 60dBμ(Ant input)	(B)	AUTO 98.0MHz	VR4 (X05-)	Minimum crosstalk.	
5	TUNING LEVEL	(A) 98.0MHz 0 dev 14dBμ(Ant input) 75Ω	(B)	AUTO or MONO 98.0MHz	VR1 (X05-)	Adjust VR1 and stop at the point where FL1(TUNED) goes on.	
AM SECTION		Keep the AM loop antenna installed. SELECTOR: AM					
(1)	BAND EDGE (Low)	—	Connect a DC voltmeter between TP1(GND) and TP2.	—	L9 (X05-)	1.5V	(c)
(2)	BAND EDGE (High)	—	Connect a DC voltmeter between TP1(GND) and TP2.	—	TC2 (X05-)	8.0V	(c)
Repeat alignments (1) and (2) several times.							
(3)	RF ALIGNMENT (1)	(D) 600kHz 20dBμ(Ant input)	(B)	—	L8 (X05-)	Maximum amplitude and symmetry of the oscilloscope display.	
(4)	RF ALIGNMENT (2)	(D) 1400kHz 20dBμ(Ant input)	(B)	—	TC1 (X05-)	Maximum amplitude and symmetry of the oscilloscope display.	
Repeat alignments (3) and (4) several times.							
(5)	IF TRANSFORMER	(D) 1000kHz 20dBμ(Ant input)	(B)	—	L10 (X05-)	Maximum amplitude and symmetry of the oscilloscope display.	
(6)	TUNING LEVEL	(D) 1000kHz 36dBμ(Ant input)	(B)	—	VR2 (X05-)	Adjust VR2 and stop at the point where FL1(TUNED) goes on.	
AUDIO SECTION							
[1]	IDLE CURRENT	—	(E) Connect a DC voltmeter across CP1(L) CP2(R)	Volume: 0	VR1(L) VR2(R) (X07-)	13mV	(d)
[2]	DOLBY SURROUND CENTER ADJUSTMENT	(F) Connect an AG(1kHz) to CD jack(L or R)	Connect an oscilloscope between TP9 and GND.	Main volume: 0 Increase the input level until the waveform clips.	VR2 (X14-)	Adjust so that the upper and lower waveform clips becomes symmetrical.	(e)
[3]	DOLBY SURROUND CLOCK LEAKAGE ADJUSTMENT	(F) Cut off the input signal level.	Connect an oscilloscope between TP9 and GND.	—	VR1 (X14-)	Adjust so that the height of the clock frequency(several 10kHz) becomes minimum.	(e)

REGLAGE

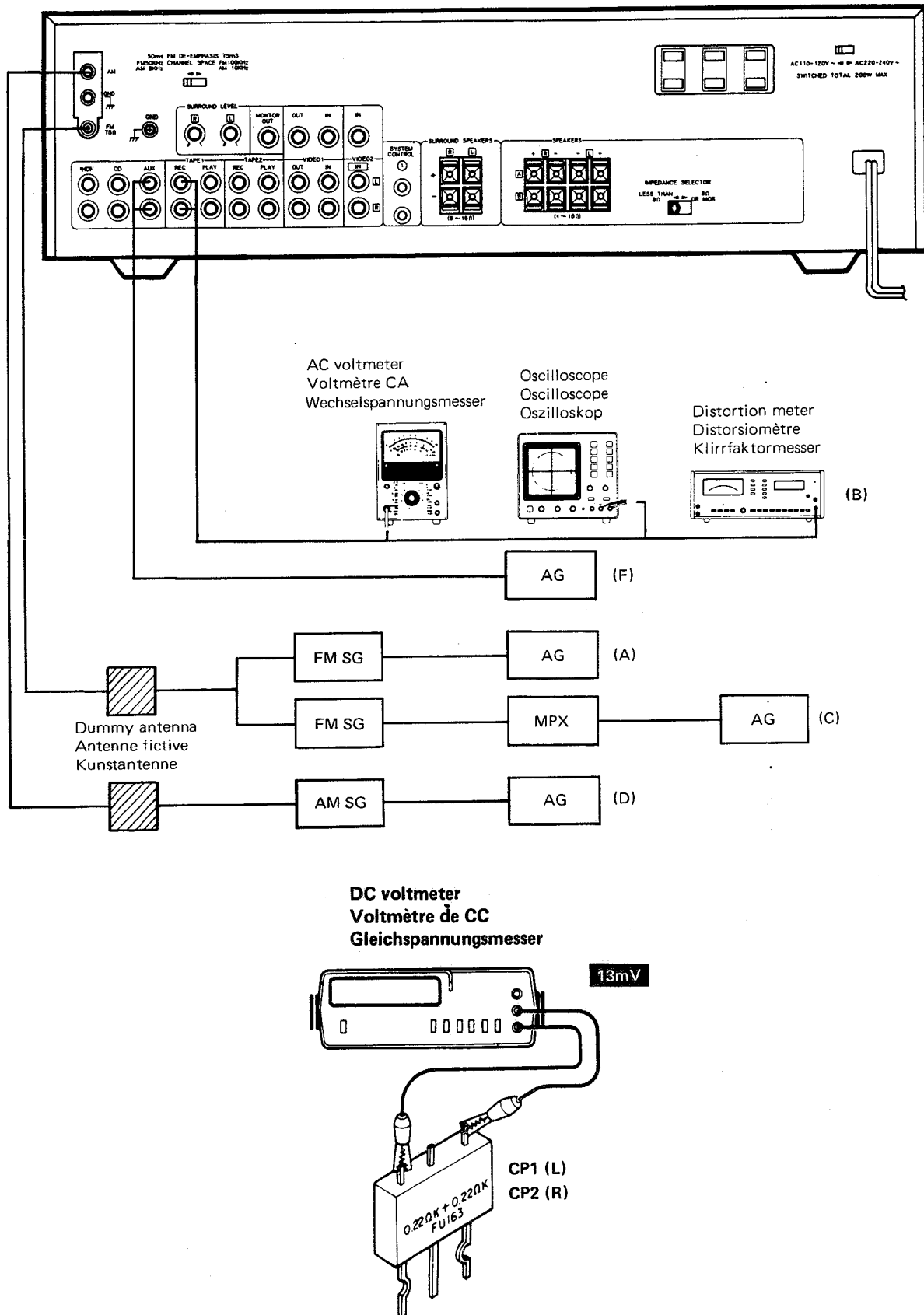
N°	ITEM	REGLAGE DE L'ENTRÉE	REGLAGE DE LA SORTIE	REGLAGE DU TUNER	POINT DE L'ALIGNEMENT	ALIGNER POUR	FIG.
SECTION MF		SELECTEUR : FM					
1	DETECTEUR	(A) 98,0MHz 1kHz.±75kHz dév 60dBμ(Entrée ANT)	Relier un voltmètre CC entre les TP3 et TP4.	AUTO ou MONO 98,0MHz	L4 (X05-)	0V	(a)
2	OSCILLATEUR CONTROLE PAR LA TENSION	(A) 98,0MHz 0 dév 100dBμ(Entrée ANT)	Relier un compteur de fréquence entre les TP5 et GND.	AUTO 98,0MHz	VR3 (X05-)	19,00kHz	(b)
3	DISTORSION (STEREO)	(C) 98,0MHz 1kHz.68,25kHz dév Selection:1 ou R Signal pilote: ±6,75kHz dév 60dBμ(Entrée ANT)	(B)	98,0MHz	Tête H.F. IFT (X05-)	Distorsion minimale.	
4	SEPARATION (E type)	(C) 98,0MHz Signal stéréo 60dBμ(Entrée ANT)	(B)	AUTO 98,0MHz	VR4 (X05-)	Diaphonie minimale.	
5	NIVEAU D'ACORDER	(A) 98,0MHz 0 dév -- 14dBμ(Entrée ANT) 75Ω	(B)	AUTO ou MONO 98,0MHz	VR1 (X05-)	Ajuster VR1 et arrêter le mouvement de VR1 au moment où le FL1(TUNED)s'allume.	
SECTION MA		Laisser l'antenne bouche MA installée. SELECTEUR: AM					
(1)	BORD DE BANDE (Bas)	—	Relier un voltmètre entre les TP1(GND) et TP2.	—	L9 (X05-)	1,5V	(c)
(2)	BORD DE BANDE (Haut)	—	Relier un voltmètre entre les TP1(GND) et TP2.	—	TC2 (X05-)	8,0V	(c)
Répéter les points (1) et (2) plusieurs fois.							
(3)	ALIGNEMENT H.T. (1)	(D) 600kHz 20dBμ(Entrée ANT)	(B)	—	L8 (X05-)	Amplitude et symétrie maximale de l'affichage de l'oscilloscope.	
(4)	ALIGNEMENT H.T. (2)	(D) 1400kHz 20dBμ(Entrée ANT)	(B)	—	TC1 (X05-)	Amplitude et symétrie maximale de l'affichage de l'oscilloscope.	
Répéter les points (3) et (4) plusieurs fois.							
(5)	TRANSFORMATEUR F.I.	(D) 1000kHz 20dBμ(Entrée ANT)	(B)	—	L10 (X05-)	Amplitude et symétrie maximale de l'affichage de l'oscilloscope.	
(6)	NIVEAU D'ACORDER	(A) 1000kHz 36dBμ(Entrée ANT)	—	—	VR2 (X05-)	Ajuster VR2 et arrêter le mouvement de VR2 au moment où le FL1(TUNED)s'allume.	
SECTION AUDIO							
[1]	COURANA DE POLARISATION	—	(E) Connecter un voltmètre CC sur CP1(L) CP2(R)	Volume: 0	VR1(G) VR2(D) (X07-)	13mV	(d)
[2]	AJUSTEMENT CENTRAL DE L'ENVIRONNEMENT DOLBY	(F) Relier un AG(1kHz) au CD prise (L ou R).	Relier un oscilloscope entre les TP9 et GND.	Volume principal: 0 Augmenter le niveau d'entrée jusqu'à ce que la forme d'onde s'écrite.	VR2 (X14-)	Ajuster pour que les écrêtements des formes d'onde supérieure et inférieure soient symétriques.	(e)
[3]	AJUSTEMENT DE FUITE DE L'HORLOGE DE L'ENVIRONNEMENT DOLBY	(F) Couper le niveau de signal d'entrée.	Relier un oscilloscope entre les TP9 et GND.	—	VR1 (X14-)	Ajuster pour que la hauteur de la fréquence de l'horloge (plusieurs dizaines de 10kHz) devienne minimum.	(e)

ABGLEICH

NR.	GEGENSTAND	EINGANGS-EINSTELLUNG	AUSGANGS-EINSTELLUNG	TUNER-EINSTELLUNG	ABGLEICH-PUNKTE	ABGLEICHEN FÜR	ABB.
UKW-EMPfangSABTEILUNG WÄHLER: FM							
1	DETEKTOR	(A) 98,0MHz 1kHz, ±75kHz Hub 60dBμ(ANT-Eingang)	Einen Gleichspannungs- messer zwischen TP3 und TP4 anschließen.	AUTO oder MONO 98,0MHz	L4 (X05-)	0V	(a)
2	SPANNUNGS- GEREGELTER OSZILLATOR	(A) 98,0MHz 0 Hub 100dBμ(ANT-Eingang)	Einen Frequenzzähler zwischen TP5 und GND anschließen.	AUTO 98,0MHz	VR3 (X05-)	19,00kHz	(b)
3	KLIRRFaktor (STEREO)	(C) 98,0MHz 1kHz, ±68,25kHz Hub Wähler: L oder R Piloten: ±6,75kHz Hub 60dBμ(ANT-Eingang)	(B)	98,0MHz	Frontend IFT (X05-)	Minimal Klirrfaktor.	
4	STEREO KANAL Trennung (E Type)	(C) 98,0MHz Stereo Signal 60dBμ(ANT-Eingang)	(B)	AUTO 98,0MHz	VR4 (X05-)	Minimal Klirrfaktor.	
5	ABSTIMM PEGEL	(A) 98,0MHz 0 Hub — 14dBμ(ANT-Eingang) 75Ω	(B)	AUTO oder MONO 98,0MHz	VR1 (X05-)	Den Pegel widerstand aufdrehen, und dem VR1 Halt geben wobei den FL1(TUNED) anzeiger leuchtet wird.	
MW-EMPfangSABTEILUNG Die MW-Rahmenantenne angebracht lassen. WÄHLER: AM							
(1)	BANDKANTE (Niedrig)	—	Einen Gleichspannungs- messer zwischen TP1(GND) und TP2 anschließen.	—	L9 (X05-)	1,5V	(c)
(2)	BANDKANTE (Hoch)	—	Einen Gleichspannungs- messer zwischen TP1(GND) und TP2 anschließen.	—	TC2 (X05-)	8,0V	(c)
Abstimmungen (1) und (2) mehrere Male wiederholen.							
(3)	HF-ABGLEICH (1)	(D) 800kHz 20dBμ(ANT-Eingang)	(B)	—	L8 (X05-)	Maximal Amplitude und Symmetrie des Oszilloskopbildes.	
(4)	HF-ABGLEICH (2)	(D) 1400kHz 20dBμ(ANT-Eingang)	(B)	—	TC1 (X05-)	Maximal Amplitude und Symmetrie des Oszilloskopbildes.	
Abstimmungen (3) und (4) mehrere Male wiederholen.							
(5)	ZF-UBERTRAGER	(D) 1000kHz 20dBμ(ANT-Eingang)	(B)	—	L10 (X05-)	Maximal Amplitude und Symmetrie des Oszilloskopbildes.	
(6)	ABSTIMM PEGEL	(A) 1000kHz 36dBμ(ANT-Eingang)	—	—	VR2 (X05-)	Den Pegel widerstand aufdrehen, und dem VR2 Halt geben wobei den FL1(TUNED) anzeiger leuchtet wird.	
AUDIO-ABTEILUNG							
[1]	LEERLAUFSTROM	—	(E) Einen Gleichspannungs- messer über CP1(L) CP2(R) anschließen.	Volume: 0	VR1(L) VR2(R) (X07-)	13mV	(d)
[2]	MITTEL- EINSTELLUNG DES DOLBY- RAUMKLANGS	(F) Einen AG(1kHz) zu CD Buchse anschließen. (L oder R)	Einen Oszilloskop zwischen TP9 und GND anschließen.	Haupt- lautstärke: 0 Den Eingangs- pegel erhöhen, bis die Wellen- form abgeschnitten wird.	VR2 (X14-)	So einstellen, daß die Abschneidung der oberen und unteren Wellenform symmetrisch wird.	(e)
[3]	TAKTSTELLUNG EINSTELLUNG DES DOLBY- RAUMKLANGS	(F) Den Eingangs- signalpegel abschneiden.	Einen Oszilloskop zwischen TP9 und GND anschließen.	—	VR1 (X14-)	So einstellen, daß die Höhe der Taktfrequenz (einige 10kHz) minimal wird.	(e)

ADJUSTMENT/REGLAGE/ABGLEICH

System connections/Raccordements du système/System-Anschlüsse



VOLTAGE CHECK TABLE

X05-353X-XX

IC1

1 ~ 3	2.36V
4	0V
5	9.2V
6	9.15V
7	9.13V
8	4.27V
9	3.45V
10	3.26V
11	1.26V
12	1.48V
13, 14	0.26V
15	2.39V
16	1.45V
17	6.79V
18, 19	0.05V
20, 21	3.95V
22	2.83V

IC2

1	0.75V
2	1.64V
6	0.07V
7	11.16V
8	0.01V
9	0.2V
10	0.06V
11	2.8V
12, 13	5.16V
14	2.05V
15	1.16V
16	0V

IC3

1	10.6V
2	2.57V
3	5.85V
4, 5	8.52V
6, 7	2.79V
8	0V
9	5.1V
10, 11	2.55V
12	2.54V
13, 14	2.56V
15	3.19V
16	2.5V

	B	C	E
Q1	2.4V	8.8V	1.7V
Q2	0.6V	1.9V	0V
Q3	1.2V	1.9V	0.6V
Q7	10.5V	11V	11V
Q8	11.2V	0.07V	11V

X07-235X-XX

IC1

3	0V
5	0V
6	0.7V

	B	C	E
Q1 ~ 4	0V	5.4V	-0.7V
Q5 ~ 8	0V	12.2V	5.4V
Q9, 10	12.2V	B - 1.7V	-
Q11, 12	12.2V	B - 1.8V	-
Q13, 14	B - 1.7V	2.2V	B - 1.4V
Q15, 16	B - 1.8V	1.1V	B - 1.4V
Q17, 18	-	C + 2V	0.6V
Q19, 20	C + 2V	-1.1V	C + 1.4V
Q21, 22	1.1V	B	0.5V
Q23, 24	-1.2V	C	-0.6V
Q25 ~ 28	-	-	0V
Q29	-	-	54V

X09-265X-XX

IC1, 5, 7, 9

4	-11.9V
8	11V

IC2, 3

1	-11.9V
28	11V

IC4

5 ~ 7	-11.9V
12, 13	10.1V
14	11V

	B	C	E
Q1, 2	-11.8V	0V	0V
Q3, 4	0.7V	0V	0V
Q5, 6	0.5V	B	0.01V
Q7, 8	-0.67V	C	-0.01V
Q9, 10	-0.5V	1.1V	-1.1V
Q11	0V	0V	0.6V
Q12	0.17V	-20.1V	0.75V
Q13	0.17V	-20.8V	0.75V
Q14	-20.1V	-0.63V	-20.8V
Q15	-0.02V	1.2V	-0.63V
Q16	1.2V	21V	0.6V
Q17	-0.63V	-20.7V	-0.02V
Q18	0.6V	21V	-0.02V
Q19	-20.7V	-0.02V	-21.3V
Q20	-	-	-0.02V
Q21	12.4V	-2.8V	12.6V
Q22	-	13.6V	31.8V
Q24	0V	0.6V	0V
Q25	0.6V	B - 0.7V	0V
Q26	B - 0.7V	B	B
Q27	-20.7V	-12.8V	-21.3V
Q28	-13.8V	-20.7V	-12.8V
Q29	-0.6V	-13.8V	0V
Q30	-29.8V	-37.5V	-30.9V
Q31	-	-29.8V	5.5V
Q32	-	-11.8V	0V
Q33	2.7V	0V	3.3V
Q34	1.8V	0V	2.5V
Q35	1.9V	0V	2.5V
Q36	-12.2V	5V	-12.8V
Q37	11.8V	17.8V	20.6V
Q38	-11.2V	-11.9V	-11.9V
Q39	-11.2V	10.1V	-11.9V
Q43	11.6V	12.6V	11V

IC6, 8

1	-11.9V
7	0V
13	0V
16	11V

IC10

1	21V
3	12.6V

X14-232X-XX

IC1

9, 10	5V
64	0V

IC2

13, 14	0V
28	5V

IC3

15, 16	5V
19	0V
23	0V
32	0V
42	5V

IC4, 5, 6, 7

8	5.5V
9	-30.9V

IC8, 9

4	6.8V
11	-12.8V

IC10

7	0V
14	5V

IC11

1	6.9V
2	-0.6V
3	-7.9V
4	-0.6V
5	-1.2V
6	-0.3V
7	-0.4V
8	-7.0V

	B	C	E
Q2	-	5.5V	-
Q3	1.8V	0V	2.5V
Q9, 10	6.1V	13.1V	5.5V
Q12	-	-	13.1V
Q13	0.7V	POWER ON : 0V POWER OFF : 16.8V	0V
Q18	6.8V	0V	7.5V

X85-1120-10

IC1

1	6.6V
2 ~ 10	0V
11 ~ 14	-6.7V
15	5.2V
16, 17	0.1V
18 ~ 28	0V

IC12

1	7.9V
2	-0.6V
3	0.03V
4	-7.0V
5	-7.9V
6	-0.6V
7	0.2V
8	0.3V

IC13

1 ~ 7	4.9V
8, 9	0V
10 ~ 15	4.9V
16	10.7V

IC14

1	5.5V
2	0V
3	5.3V

IC15, 16, 17, 18

4	-12V
8	11.8V

IC2, 3

1	0V
2 ~ 10	10.7V
11 ~ 14	0V
15	-11.7V
16	0V
18	10.6V
19	0V
20	-11.7V

X05-353X-XX

IC1

1~3	2.36V
4	0V
5	9.2V
6	9.15V
7	9.13V
8	4.27V
9	3.45V
10	3.26V
11	1.26V
12	1.48V
13, 14	0.26V
15	2.39V
16	1.45V
17	6.79V
18, 19	0.05V
20, 21	3.95V
22	2.83V

IC2

1	0.75V
2	1.64V
6	0.07V
7	11.16V
8	0.01V
9	0.2V
10	0.06V
11	2.8V
12, 13	5.16V
14	2.05V
15	1.16V
16	0V

IC3

1	10.6V
2	2.57V
3	5.85V
4, 5	8.52V
6, 7	2.79V
8	0V
9	5.1V
10, 11	2.55V
12	2.54V
13, 14	2.56V
15	3.19V
16	2.5V

	B	C	E
Q1	2.4V	8.8V	1.7V
Q2	0.6V	1.9V	0V
Q3	1.2V	1.9V	0.6V
Q7	10.5V	11V	11V
Q8	11.2V	0.07V	11V

X07-235X-XX

IC1

3	0V
5	0V
6	0.7V

	B	C	E
Q1~4	0V	5.4V	-0.7V
Q5~8	0V	12.2V	5.4V
Q9, 10	12.2V	B-1.7V	-
Q11, 12	12.2V	B-1.8V	-
Q13, 14	B-1.7V	2.2V	B-1.4V
Q15, 16	B-1.8V	1.1V	B-1.4V
Q17, 18	-	C+2V	0.6V
Q19, 20	C+2V	-1.1V	C+1.4V
Q21, 22	1.1V	B	0.5V
Q23, 24	-1.2V	C	-0.6V
Q25~28	-	-	0V
Q29	-	-	54V

X09-265X-XX

IC1, 5, 7, 9

4	-11.9V
8	11V

IC2, 3

1	-11.9V
28	11V

IC4

5~7	-11.9V
12, 13	10.1V
14	11V

	B	C	E
Q1, 2	-11.8V	0V	0V
Q3, 4	0.7V	0V	0V
Q5, 6	0.5V	B	0.01V
Q7, 8	-0.67V	C	-0.01V
Q9, 10	-0.5V	1.1V	-1.1V
Q11	0V	0V	0.6V
Q12	0.17V	-20.1V	0.75V
Q13	0.17V	-20.8V	0.75V
Q14	-20.1V	-0.63V	-20.8V
Q15	-0.02V	1.2V	-0.63V
Q16	1.2V	21V	0.6V
Q17	-0.63V	-20.7V	-0.02V
Q18	0.6V	21V	-0.02V
Q19	-20.7V	-0.02V	-21.3V
Q20	-	-	-0.02V
Q21	12.4V	-2.8V	12.6V
Q22	-	13.6V	31.8V
Q24	0V	0.6V	0V
Q25	0.6V	B-0.7V	0V
Q26	B-0.7V	B	B
Q27	-20.7V	±12.8V	-21.3V
Q28	-13.8V	-20.7V	-12.8V
Q29	-0.6V	-13.8V	0V
Q30	-29.8V	-37.5V	-30.9V
Q31	-	-29.8V	5.5V
Q32	-	-11.8V	0V
Q33	2.7V	0V	3.3V
Q34	1.8V	0V	2.5V
Q35	1.9V	0V	2.5V
Q36	-12.2V	5V	-12.8V
Q37	11.8V	17.8V	20.6V
Q38	-11.2V	-11.9V	-11.9V
Q39	-11.2V	10.1V	-11.9V
Q43	11.6V	12.6V	11V

IC6, 8

1	-11.9V
7	0V
13	0V
16	11V

IC10

1	21V
3	12.6V

X14-232X-XX

IC1

9, 10	5V
64	0V

IC2

13, 14	0V
28	5V

IC3

15, 16	5V
19	0V
23	0V
32	0V
42	5V

IC4, 5, 6, 7

8	5.5V
9	-30.9V

IC8, 9

4	6.8V
11	-12.8V

IC10

7	0V
14	5V

IC11

1	6.9V
2	-0.6V
3	-7.9V
4	-0.6V
5	-1.2V
6	-0.3V
7	-0.4V
8	-7.0V

	B	C	E
Q2	-	5.5V	-
Q3	1.8V	0V	2.5V
Q9, 10	6.1V	13.1V	5.5V
Q12	-	-	13.1V
Q13	0.7V	POWER ON : 0V POWER OFF : 16.8V	0V
Q18	6.8V	0V	7.5V

X85-1120-10

IC1

1	6.6V
2~10	0V
11~14	-6.7V
15	5.2V
16, 17	0.1V
18~28	0V

IC2, 3

1	0V
2~10	10.7V
11~14	0V
15	-11.7V
16	0V
18	10.6V
19	0V
20	-11.7V

IC12

1	7.9V
2	-0.6V
3	0.03V
4	-7.0V
5	-7.9V
6	-0.6V
7	0.2V
8	0.3V

IC13

1~7	4.9V
8, 9	0V
10~15	4.9V
16	10.7V

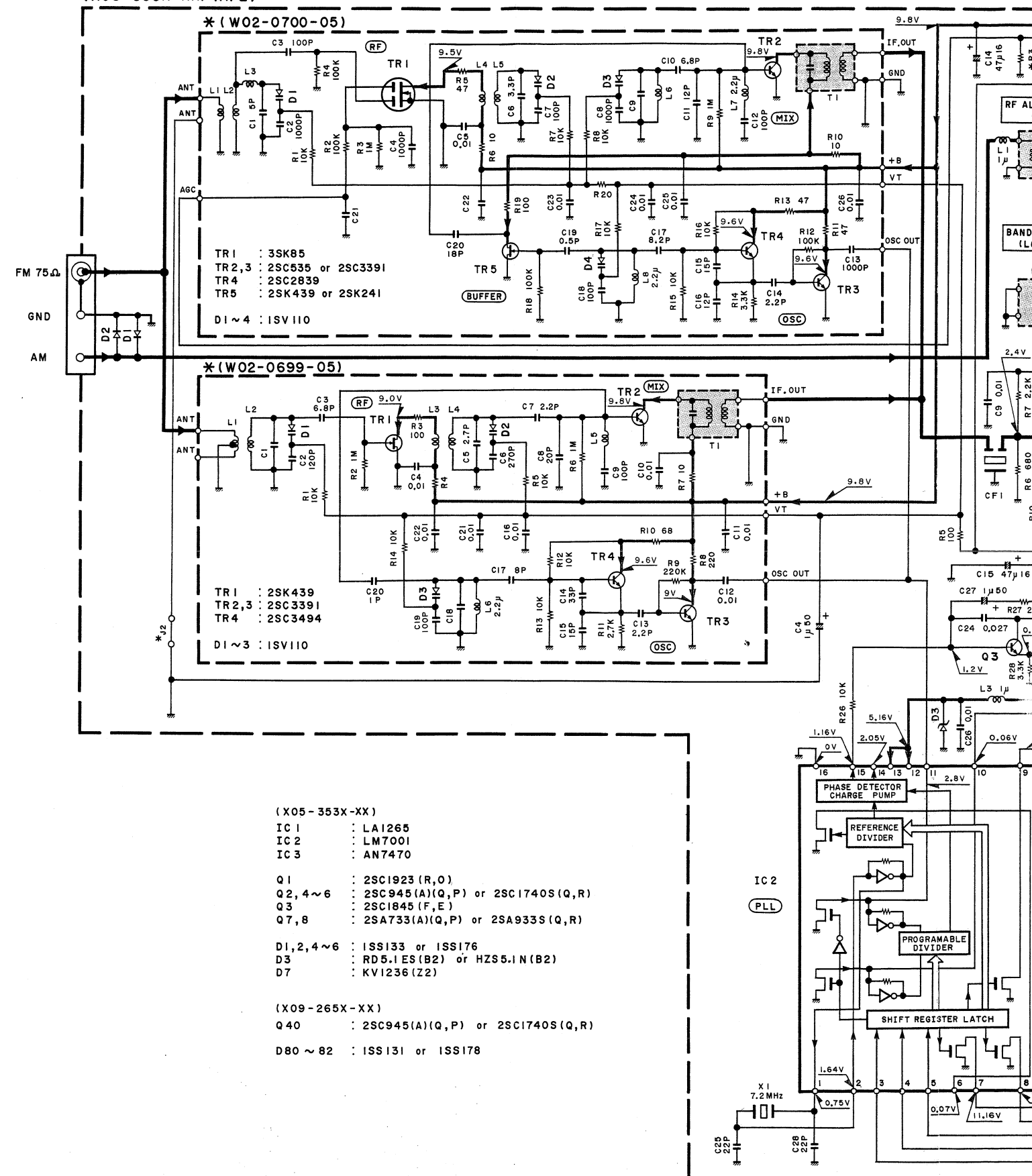
IC14

1	5.5V
2	0V
3	5.3V

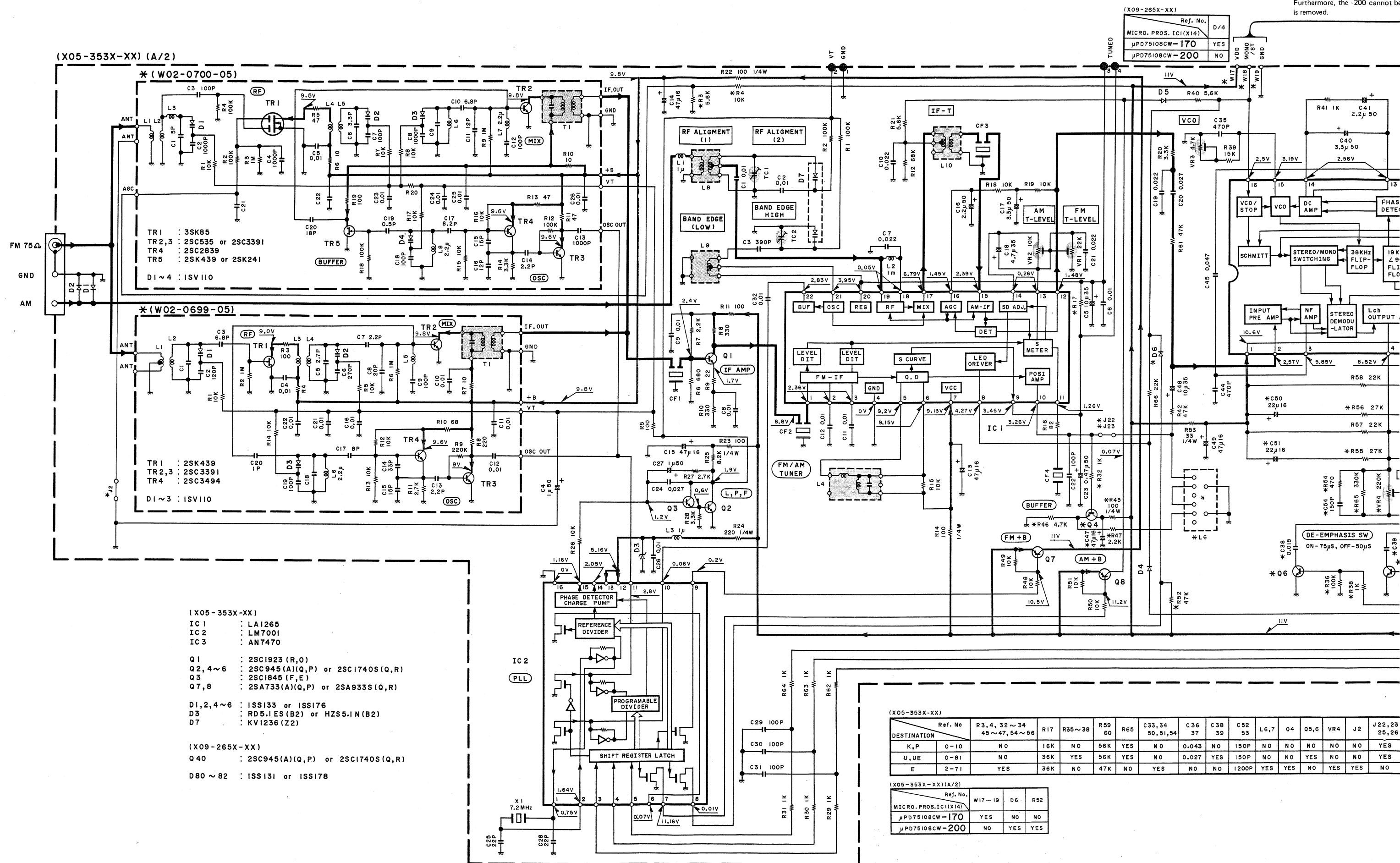
IC15, 16, 17, 18

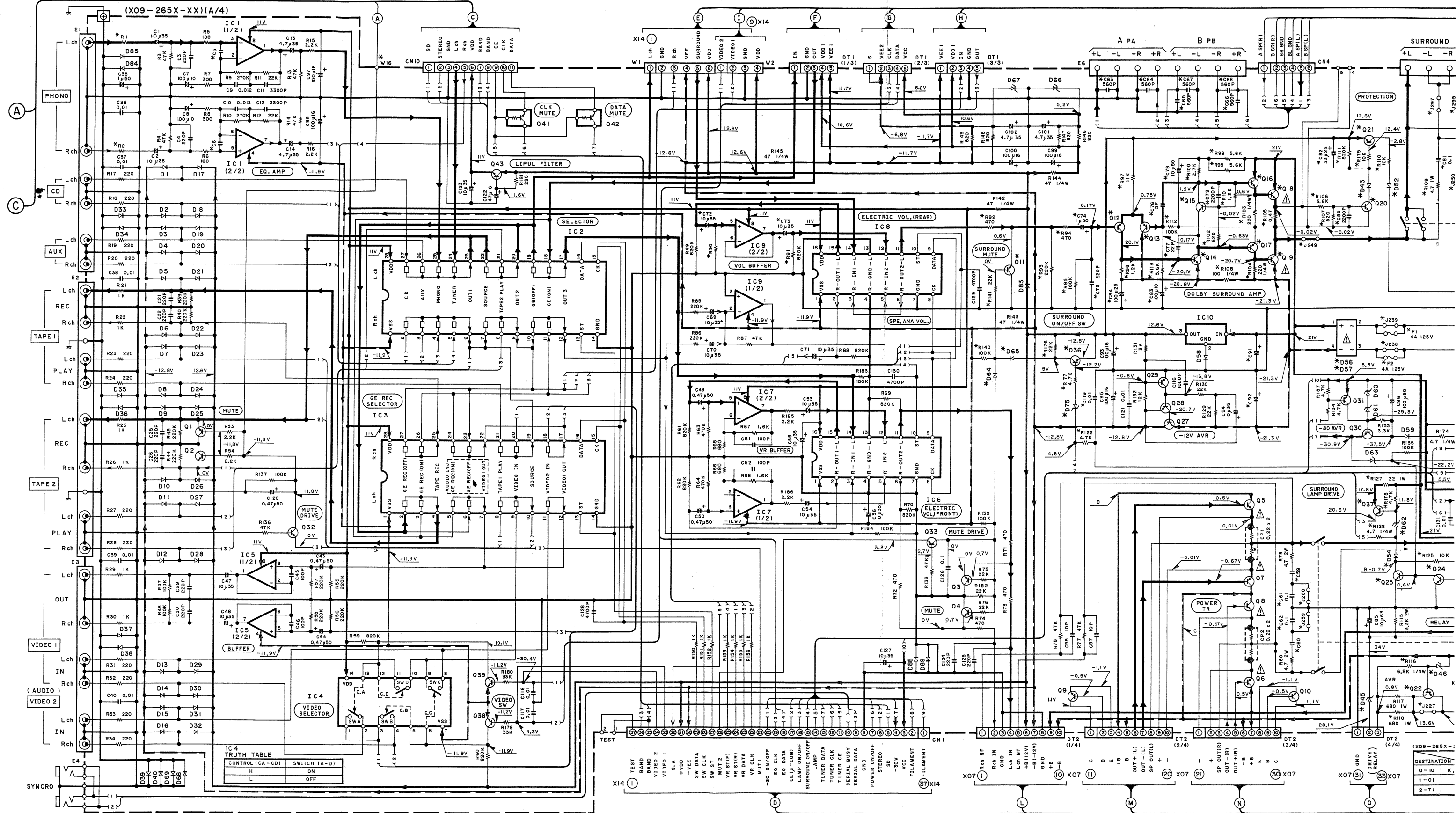
4	-12V
8	11.8V

(X05-353X-XX) (A/2)



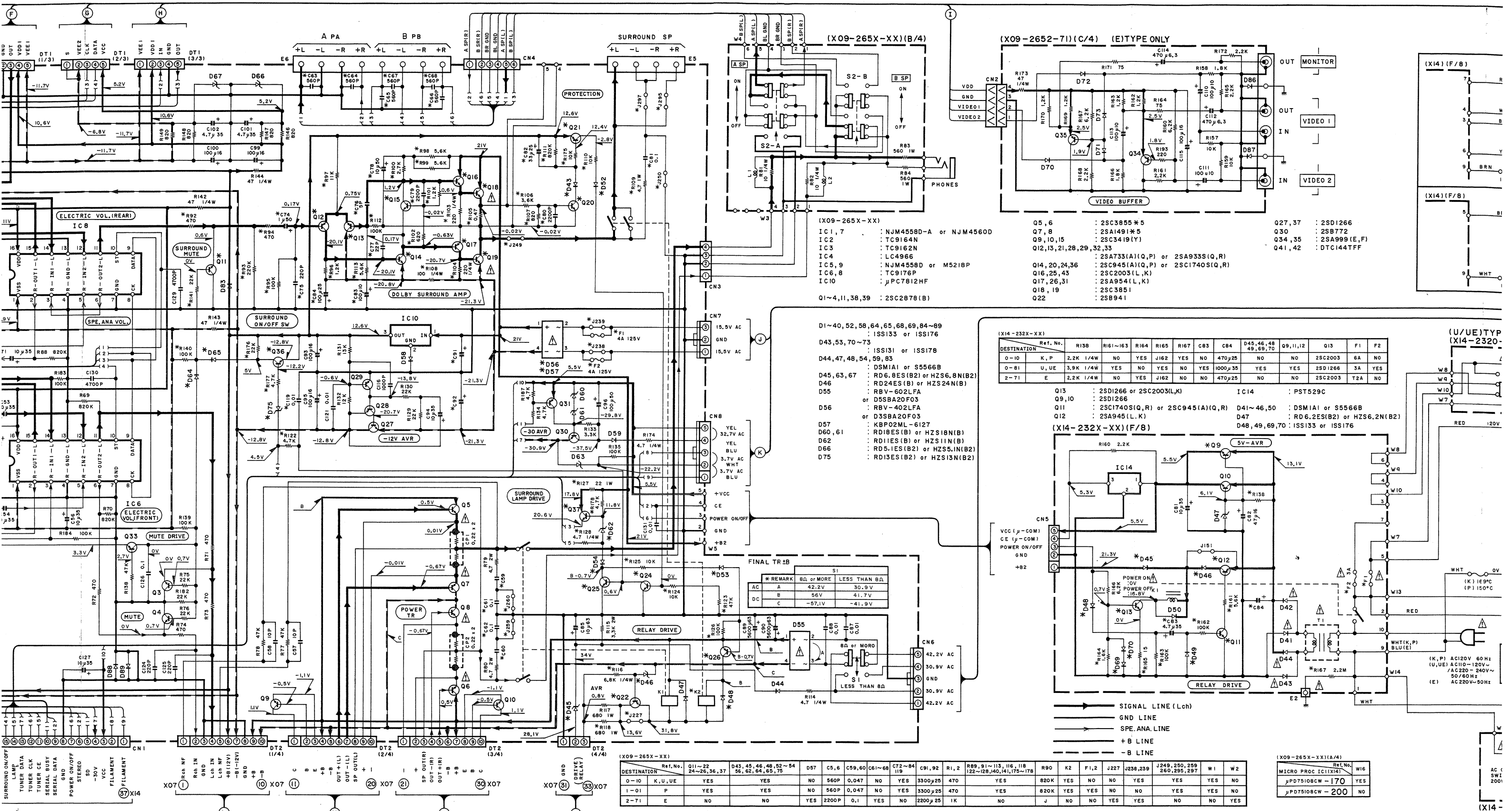
- Must always be used when the μ as microprocessor IC1 (X14-).
- This circuit does not cause any μ PD75108CW-200 is used as mic. Furthermore, the -200 cannot be removed.

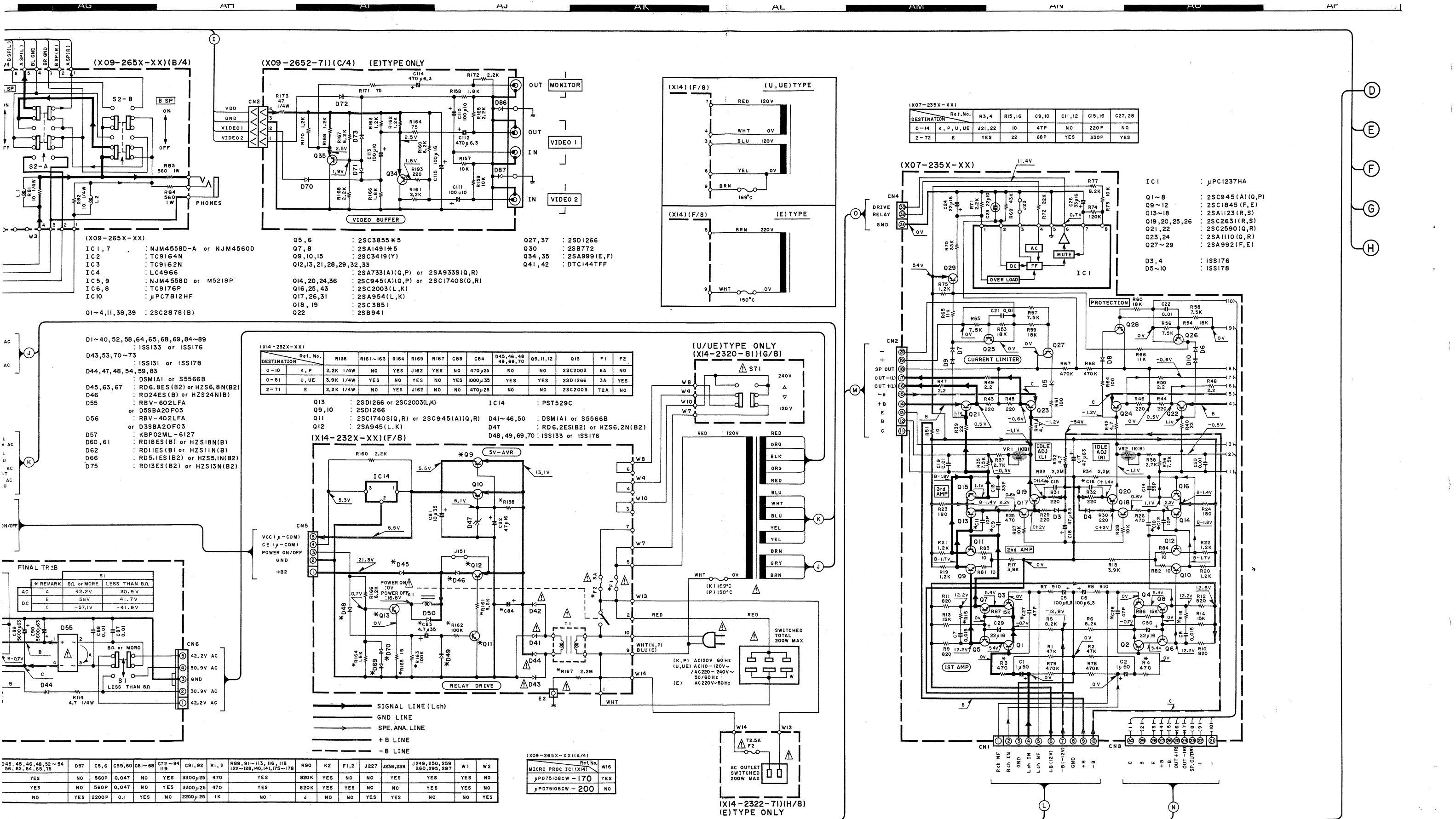




- | | | | | | | | | | | | | | | |
|-----------|-----------|---------|---------|------------|----------|---------|--------|-----------|---------|------------|---------|--------|-----------|-----------|
| 2SA733(A) | 2SC945(A) | 2SA1110 | 2SD1266 | 2SA1491* 5 | 2SA933S | 2SC3419 | 2SB941 | DTC144TFF | 2SC3851 | NJM4558D | TC9176P | M5218P | μPC1237HA | μPC7812HF |
| 2SA954 | 2SC1845 | 2SB772 | | 2SC3855* 5 | 2SC1740S | | | | | NJM4558D-A | | | | |
| 2SA992 | 2SC2003 | 2SC2590 | | | | | | | | NJM4560D | | | | |
| 2SA999 | 2SC2878 | | | | | | | | | | | | | |
| 2SA1123 | 2SC2631 | | | | | | | | | | | | | |



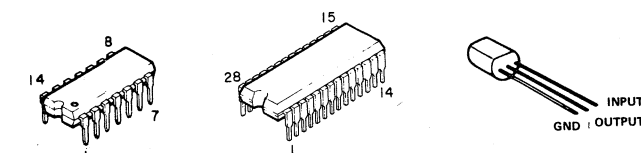




4966

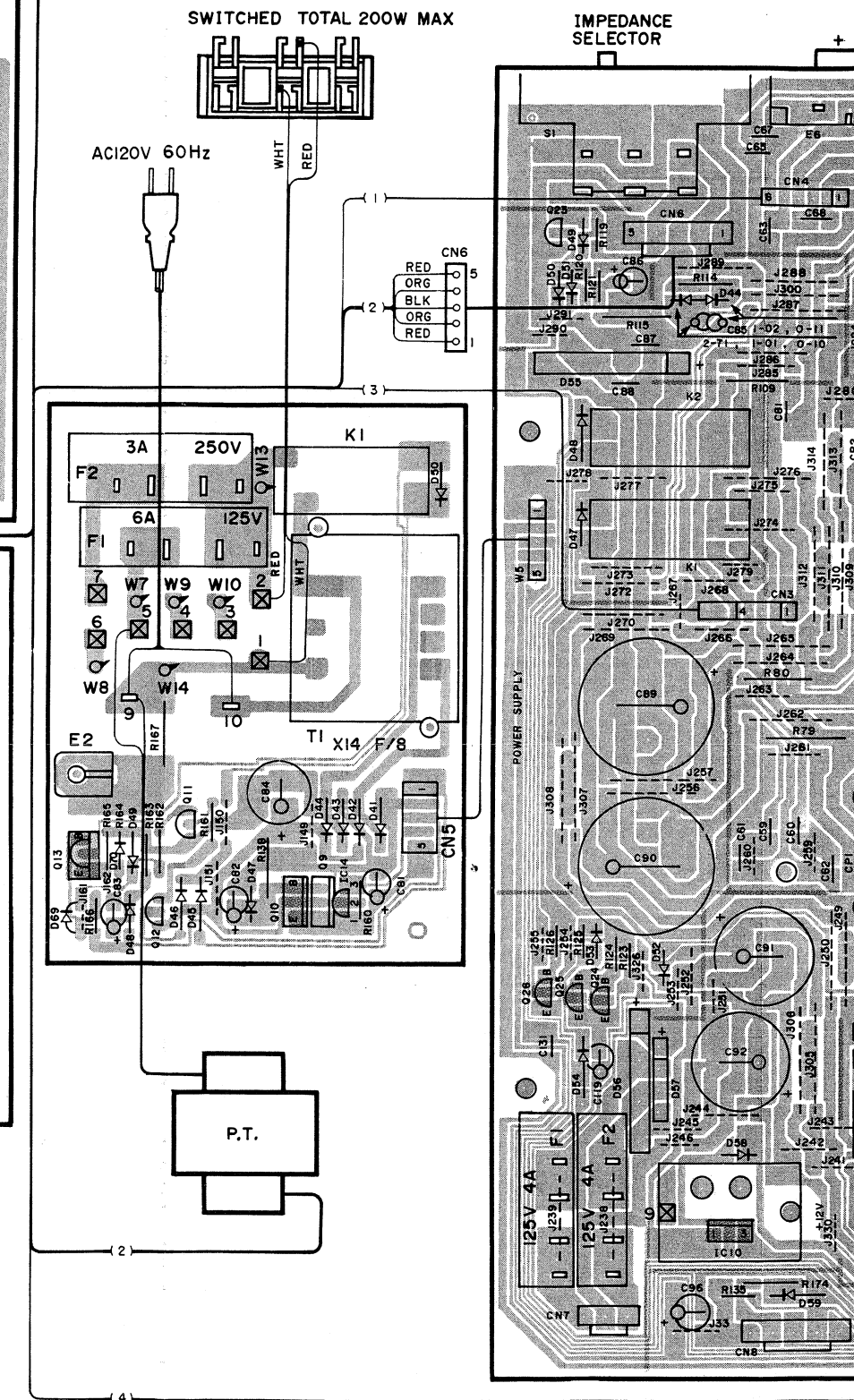
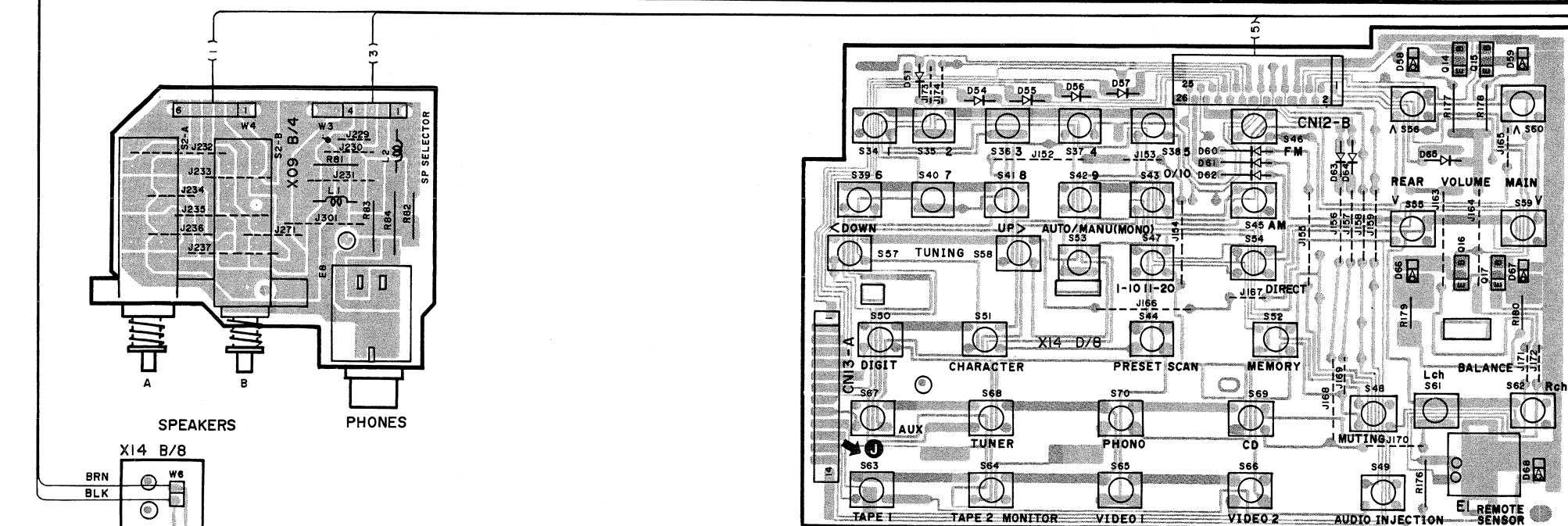
TC9162N
TC9164N

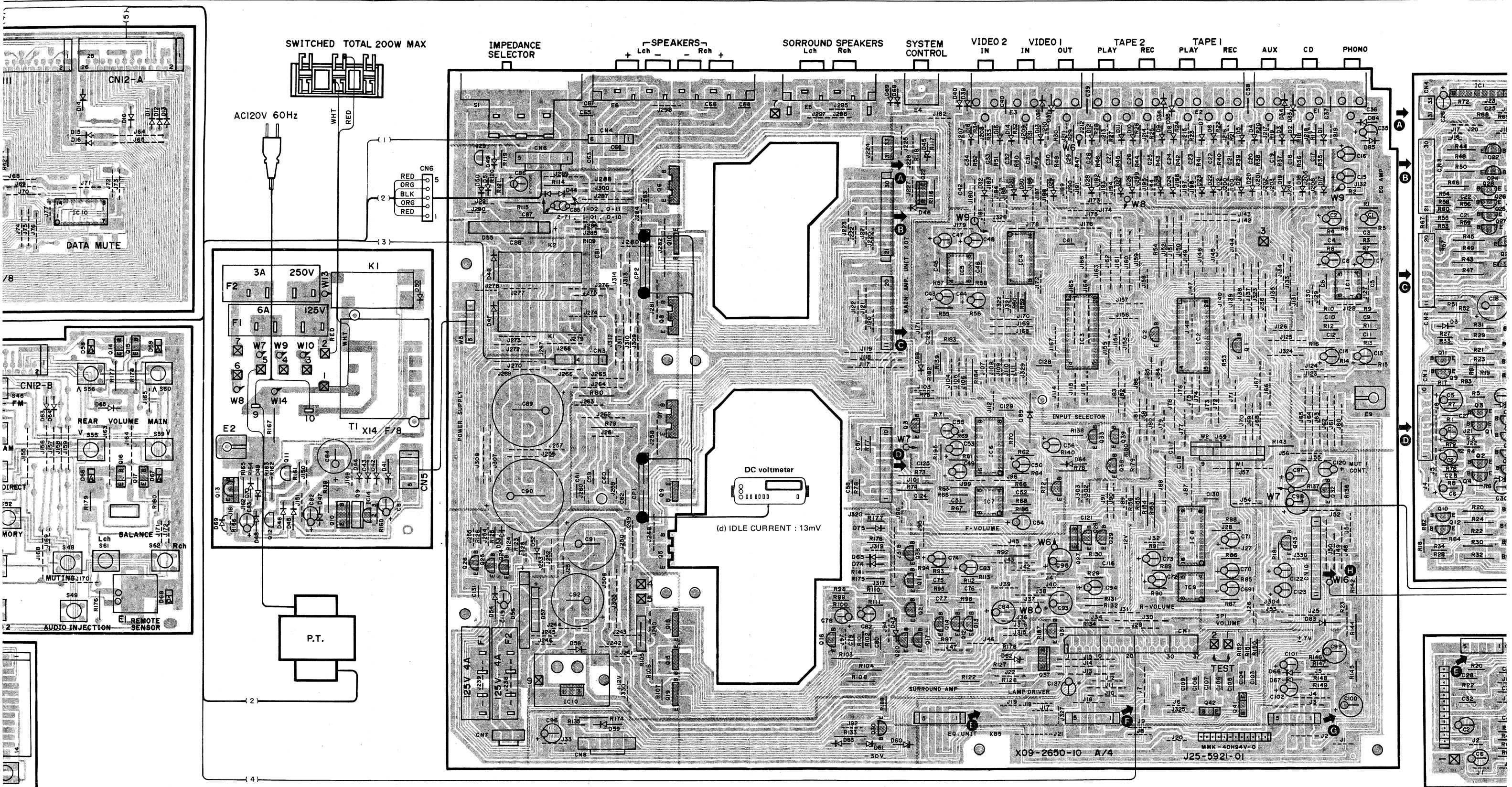
PST529C

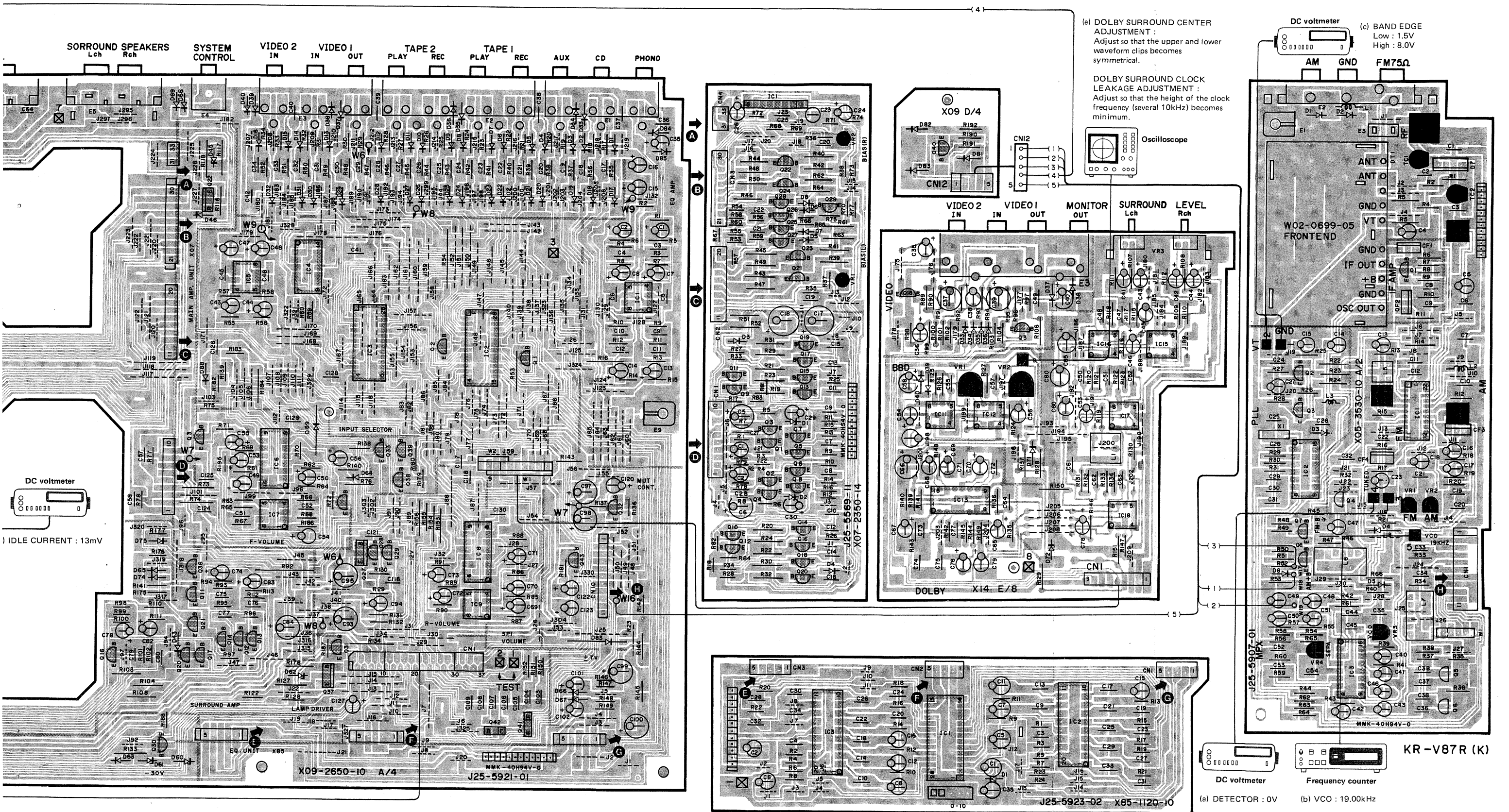


KR-V87R
KENWOOD

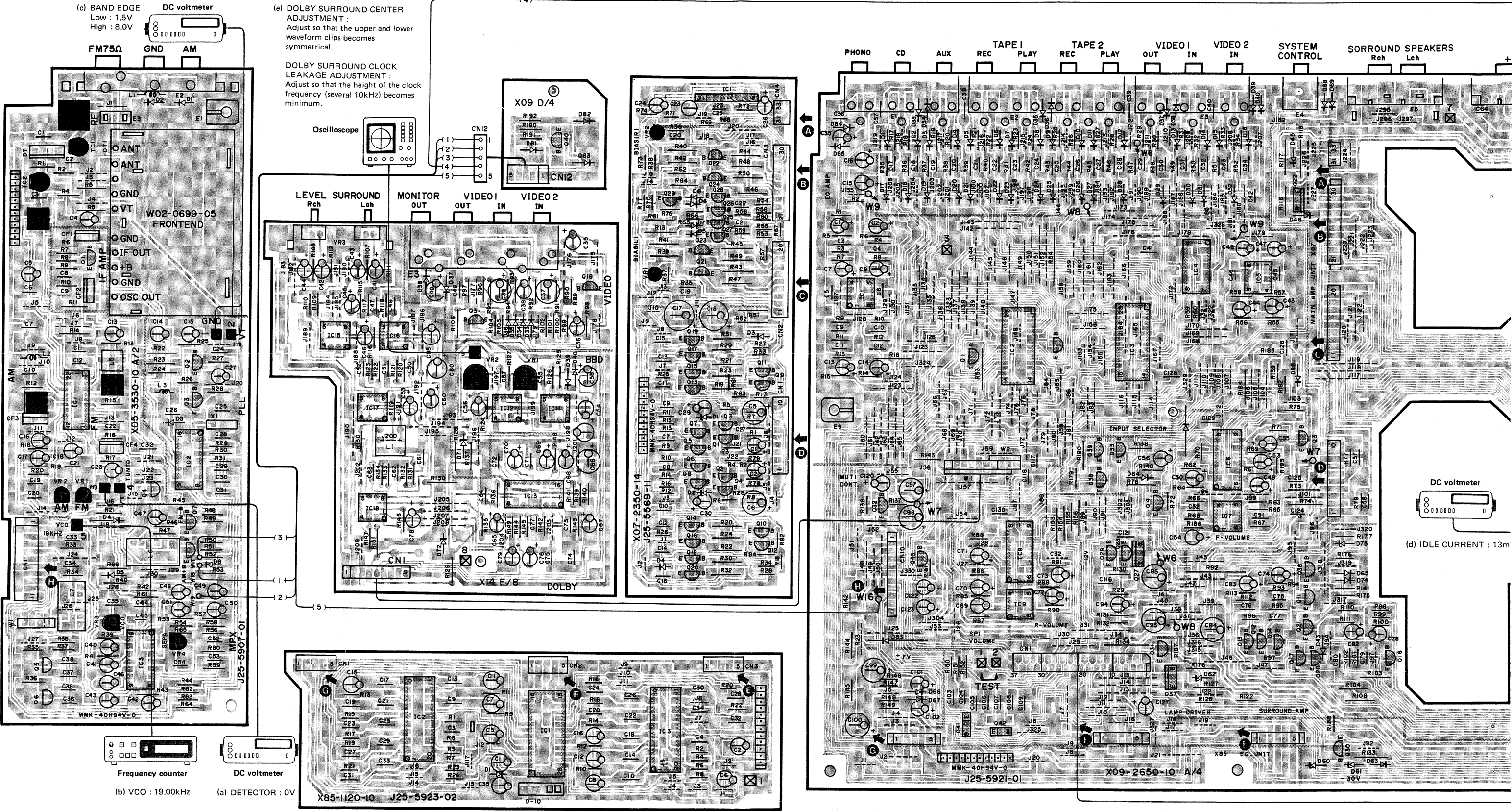
A vertical bar with alternating black and white segments, labeled 1 through 7 from top to bottom.

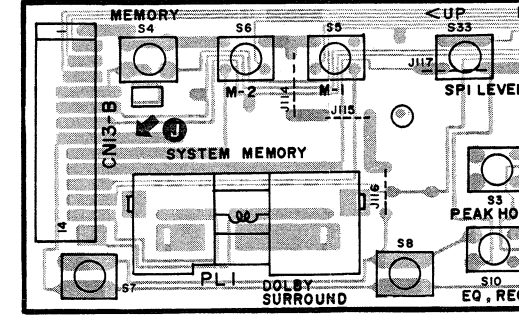
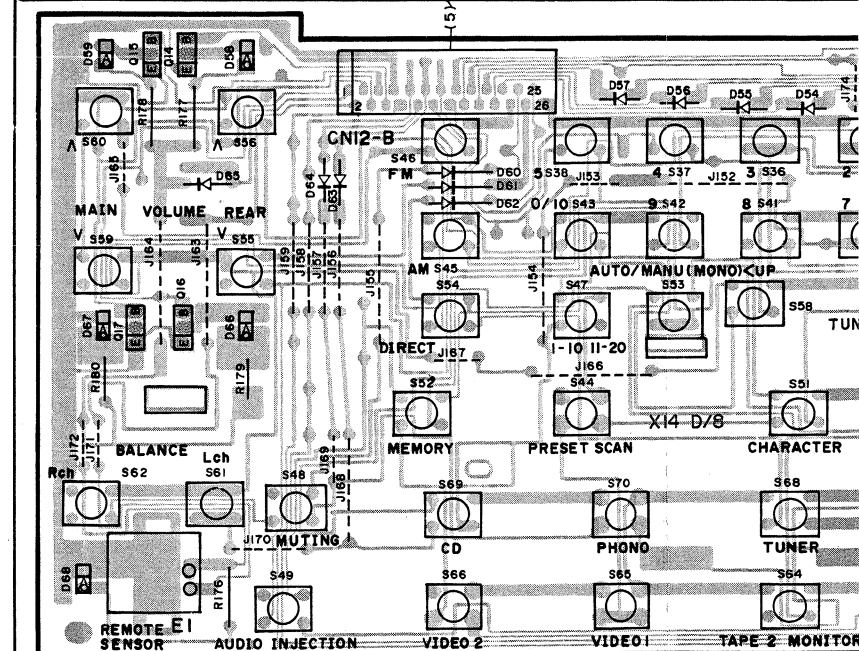
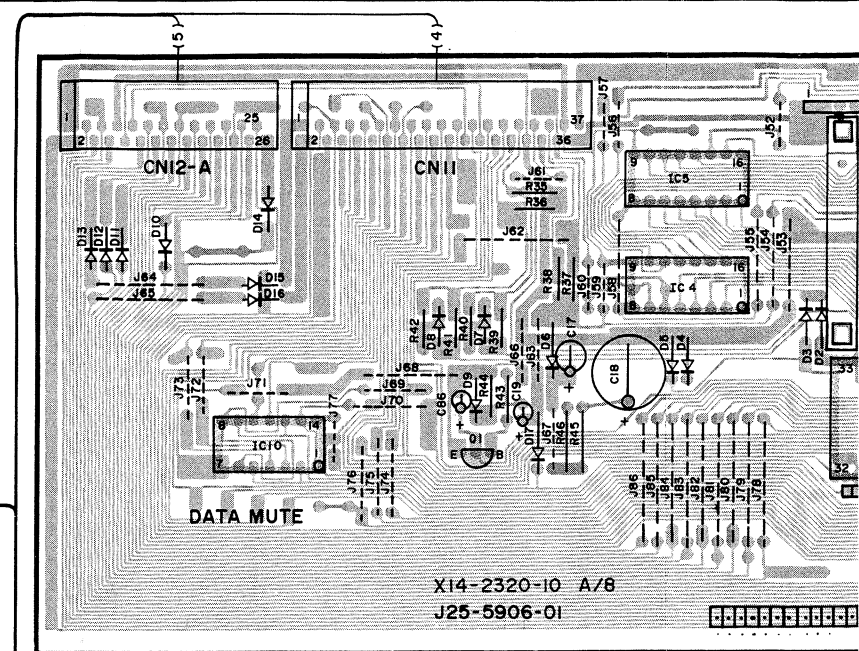
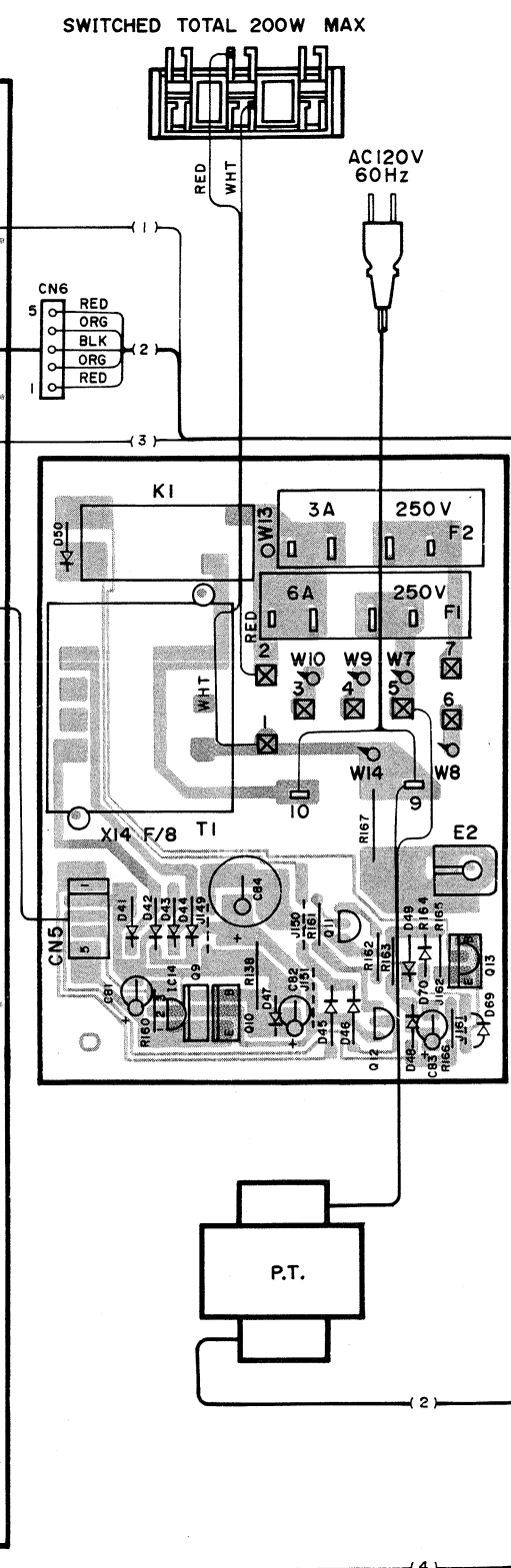
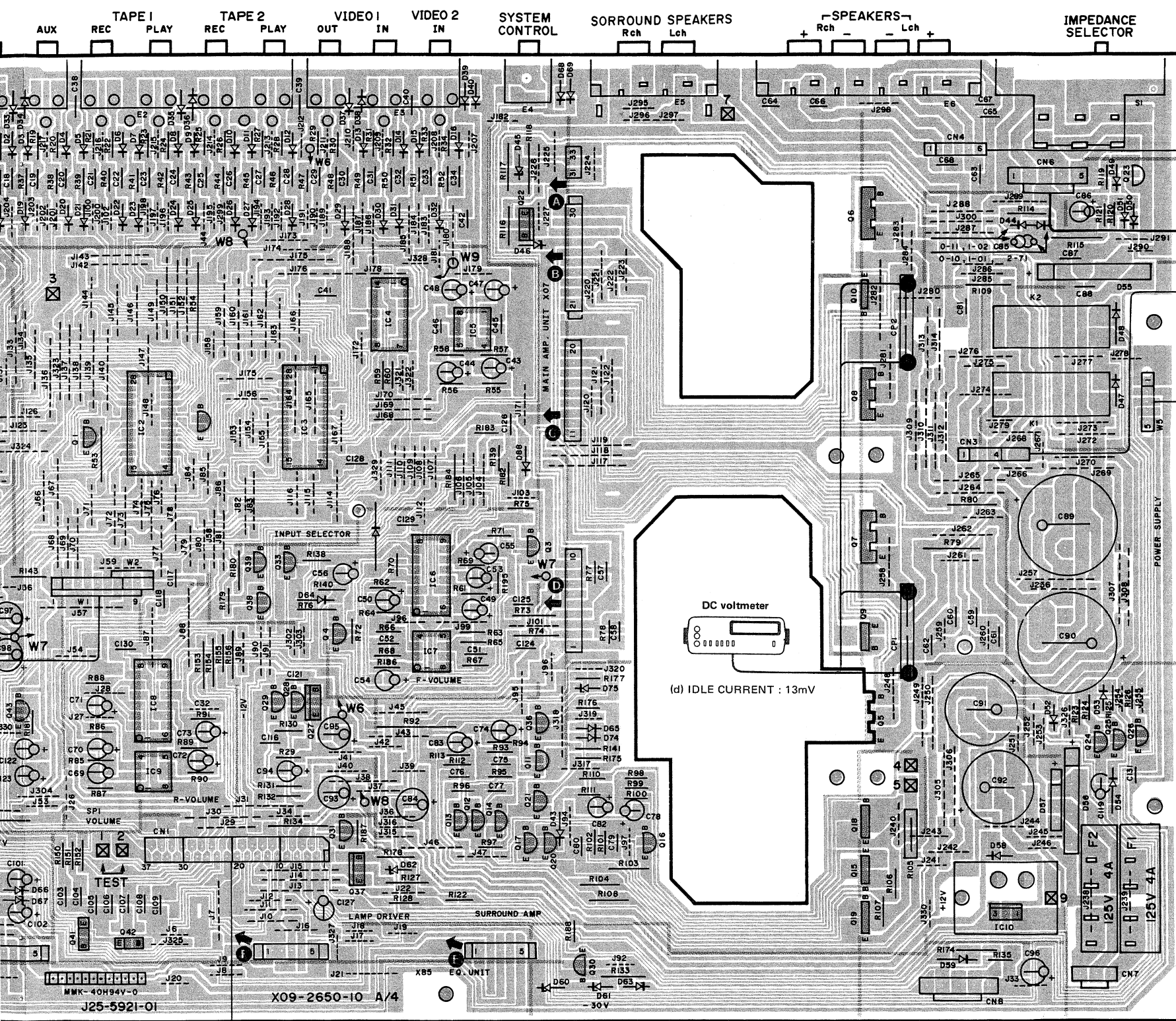


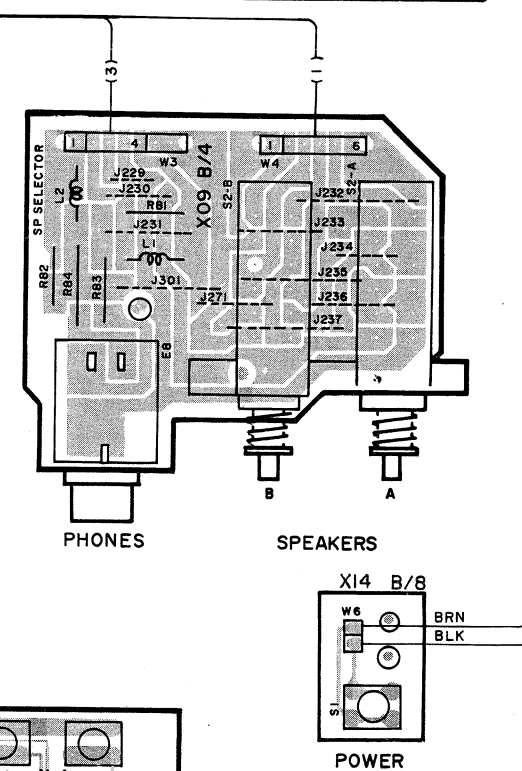
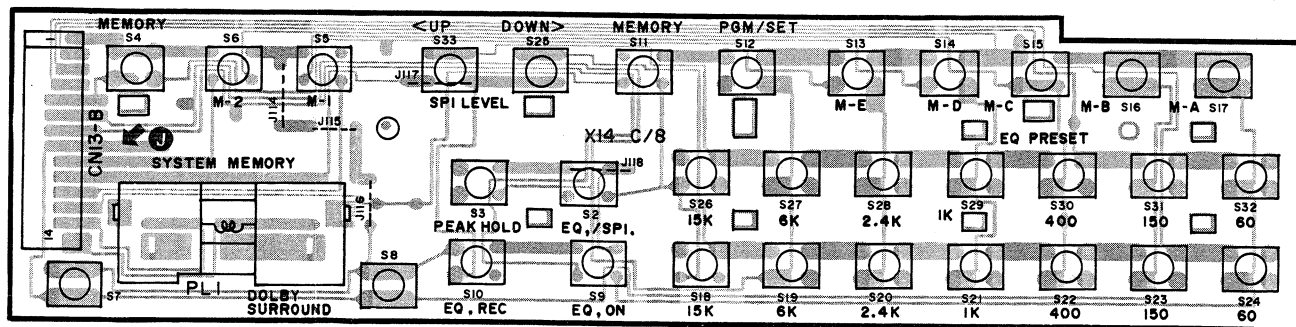
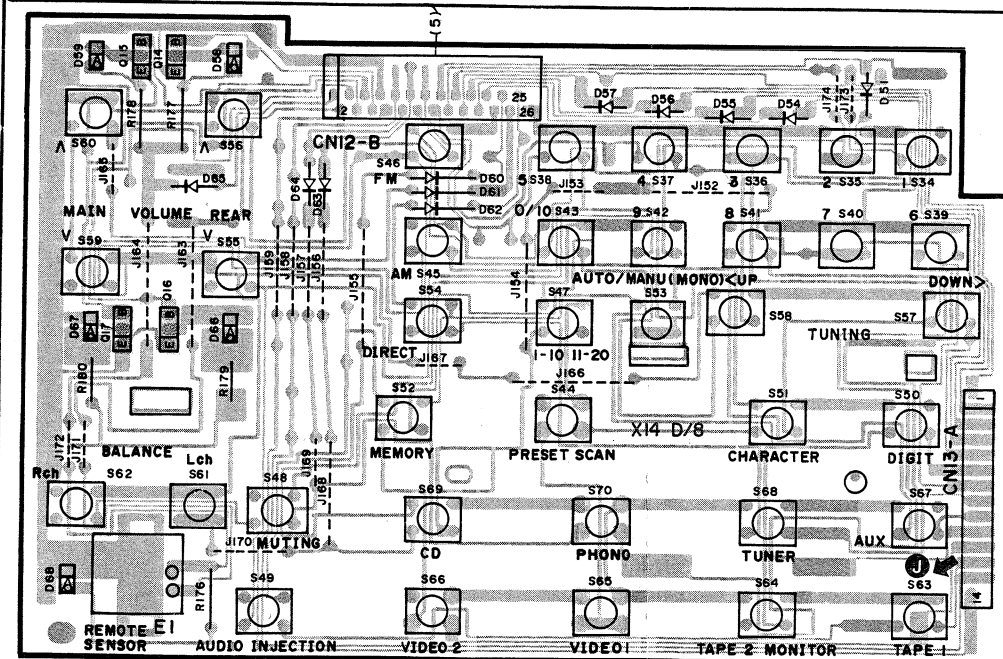
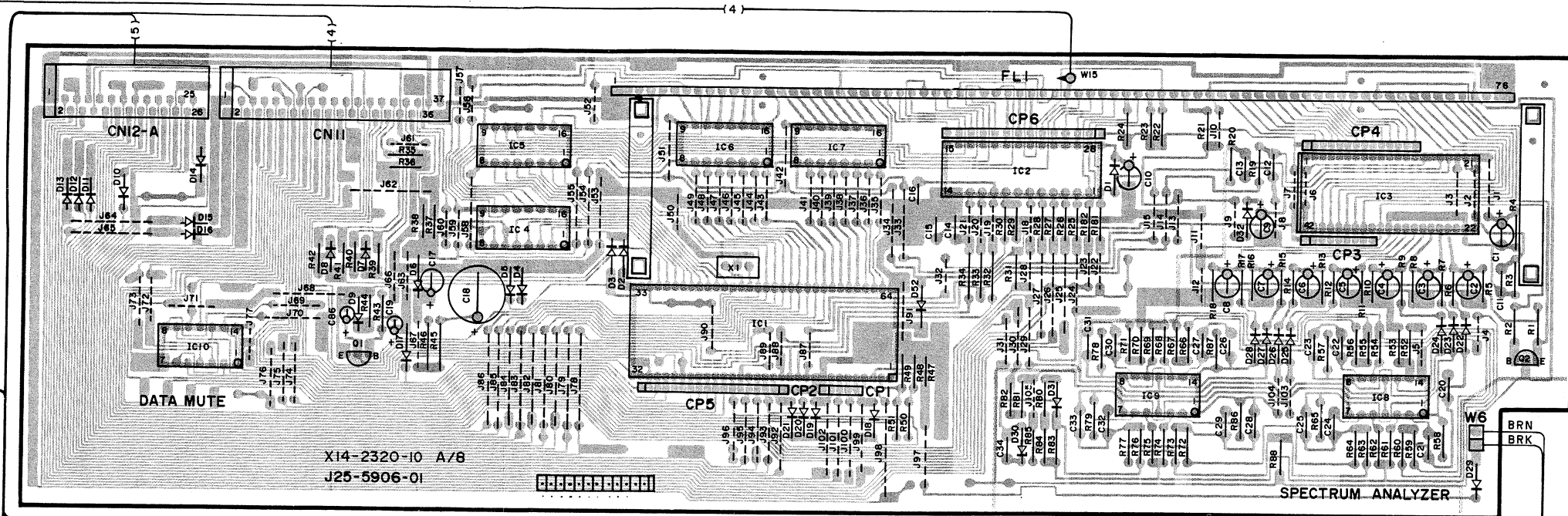
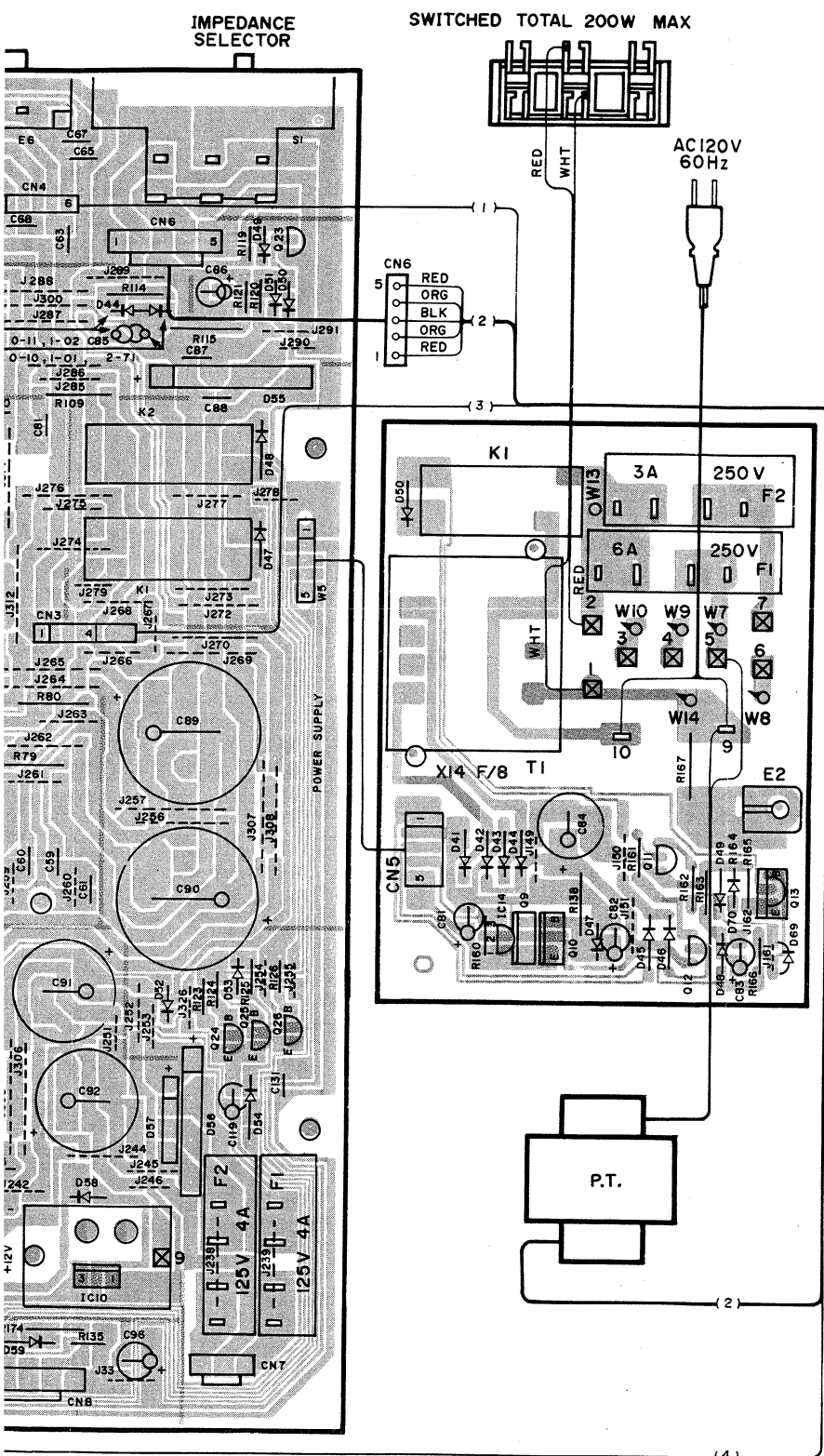




PC BOARD (FOIL SIDE VIEW)

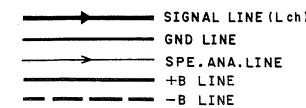
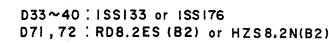




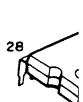


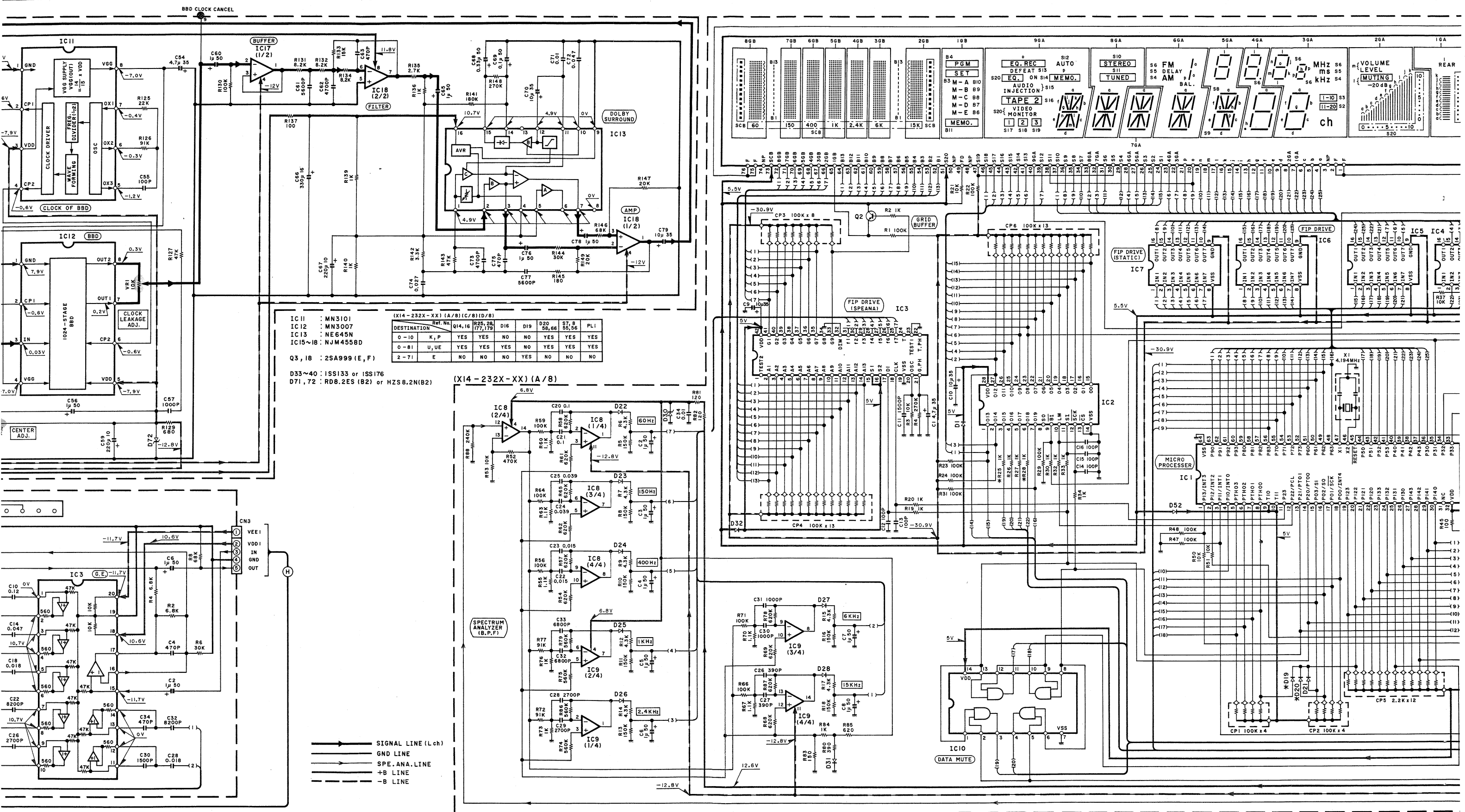
FRONT

Refer to the schematic diagram for the values of resistors and capacitors.

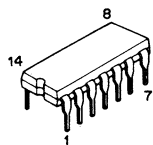


LC7522

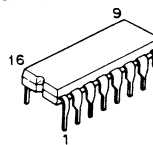




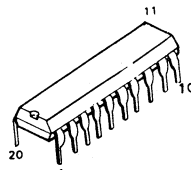
μPD4081BC



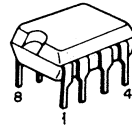
μPA80C
μPC4574C



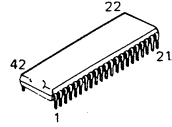
M5229P



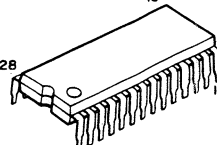
MN3007



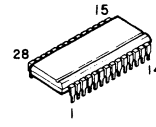
LC7565



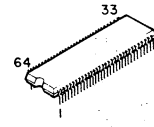
LC7522



μPD6300C

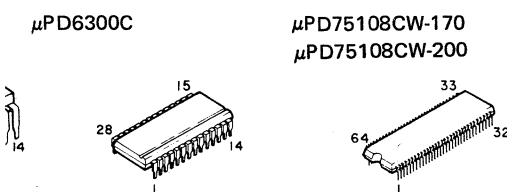
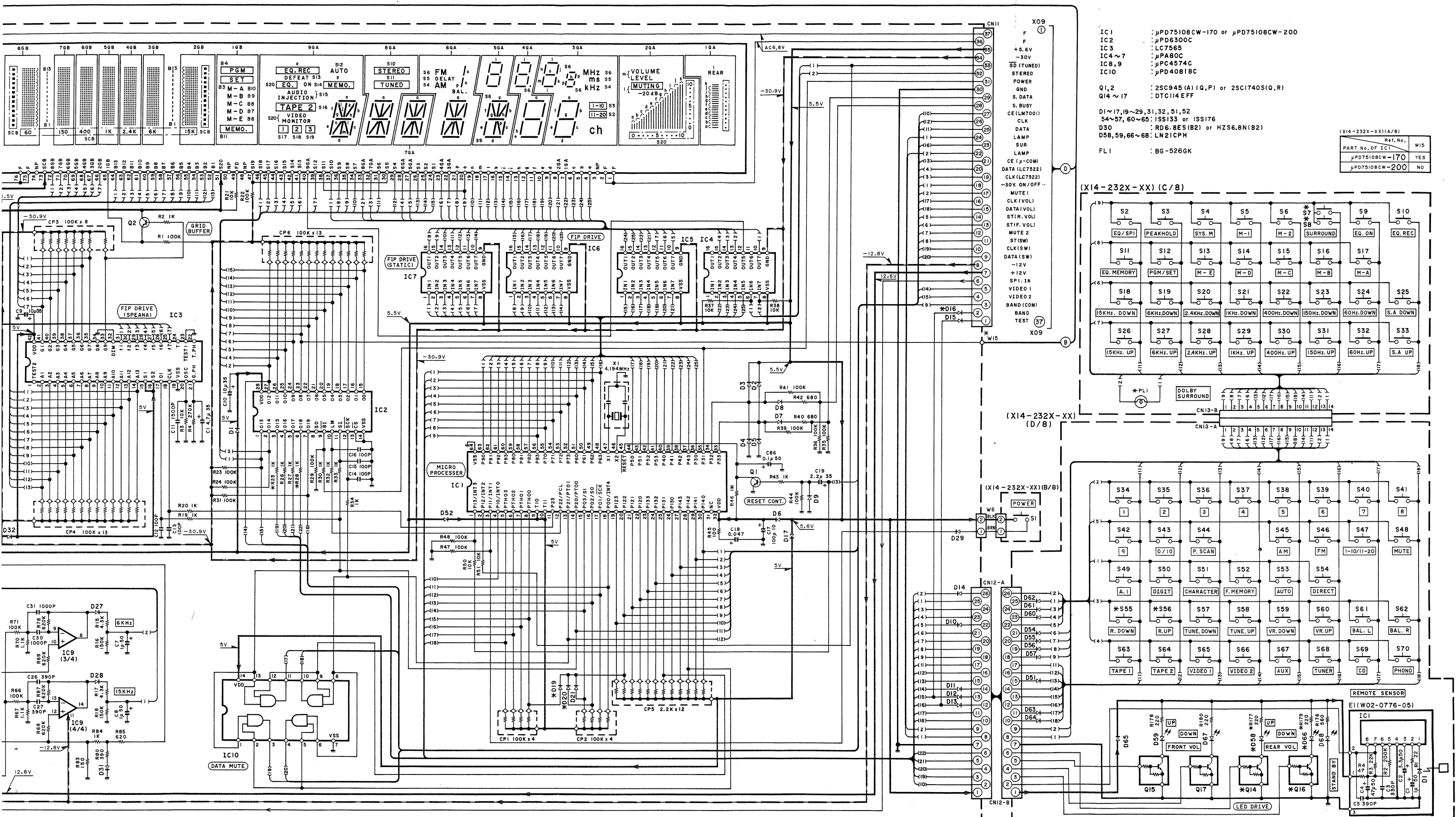


μPD75108CW-170
μPD75108CW-200



CAUTION: For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list). ⚠ Indicates safety critical components. To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.

• DC volt
voltmètre
between
• Les tens
mètre à
légèrement
appareil:



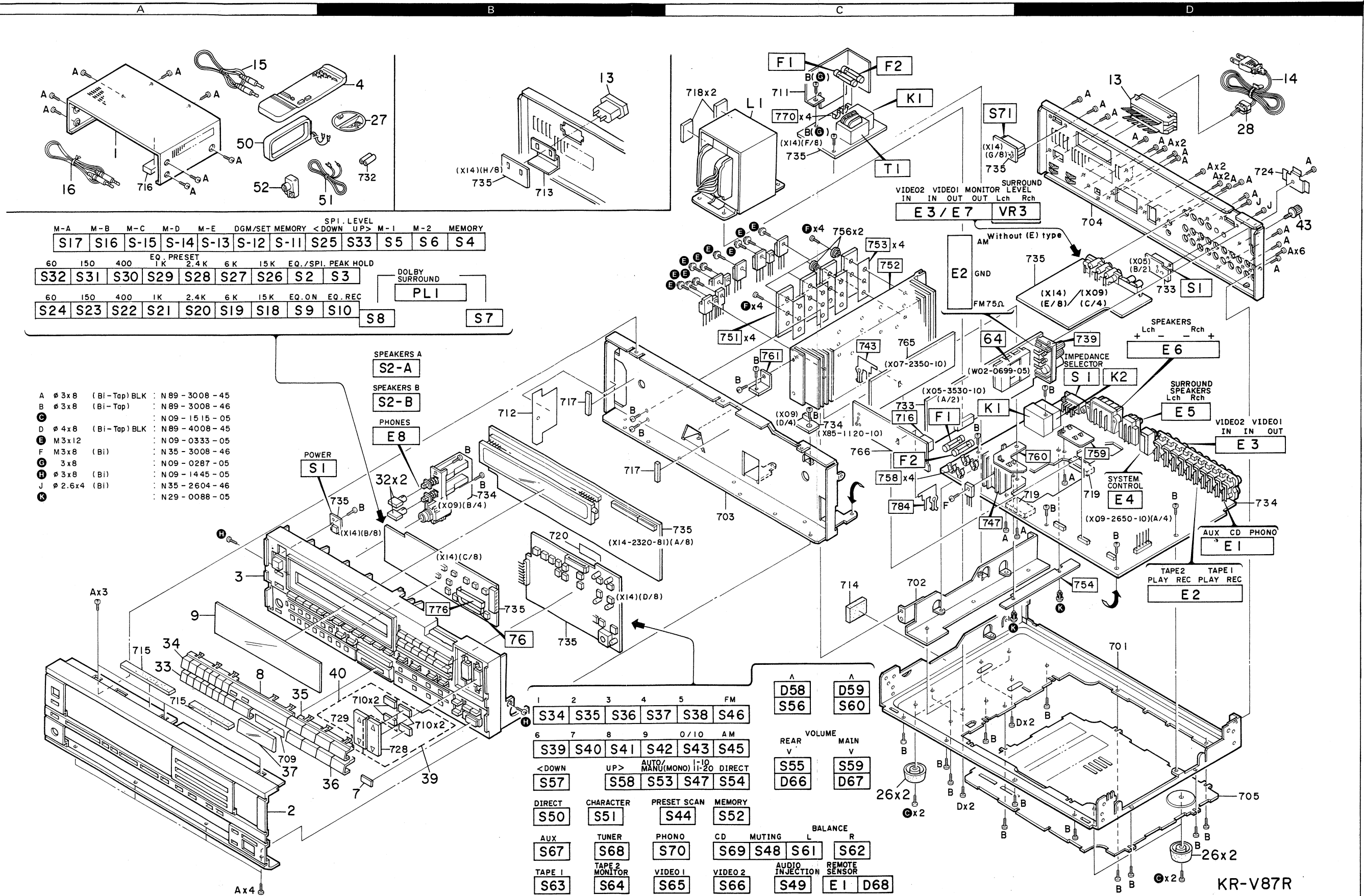
CAUTION: For continued safety, replace safety critical components only with manufacturer's recommended parts (refer to parts list). Δ Indicates safety critical components. To reduce the risk of electric shock, leakage-current or resistance measurements shall be carried out (exposed parts are acceptably insulated from the supply circuit) before the appliance is returned to the customer.

- DC voltages are as measured with a high impedance voltmeter. Values may vary slightly due to variations between individual instruments or/and units.
- Les tensions c.c. doivent être mesurées avec un voltmètre à haute impédance. Les valeurs peuvent différer légèrement du fait des variations inhérentes aux appareils et aux instruments de mesure individuels.

- Die angegebenen Gleichspannungswerte wurden mit einem hochohmigen Voltmeter gemessen. Dabei schwanken die Meßwerte aufgrund von Unterschieden zwischen einzelnen Instrumenten oder Geräten u.U. geringfügig.

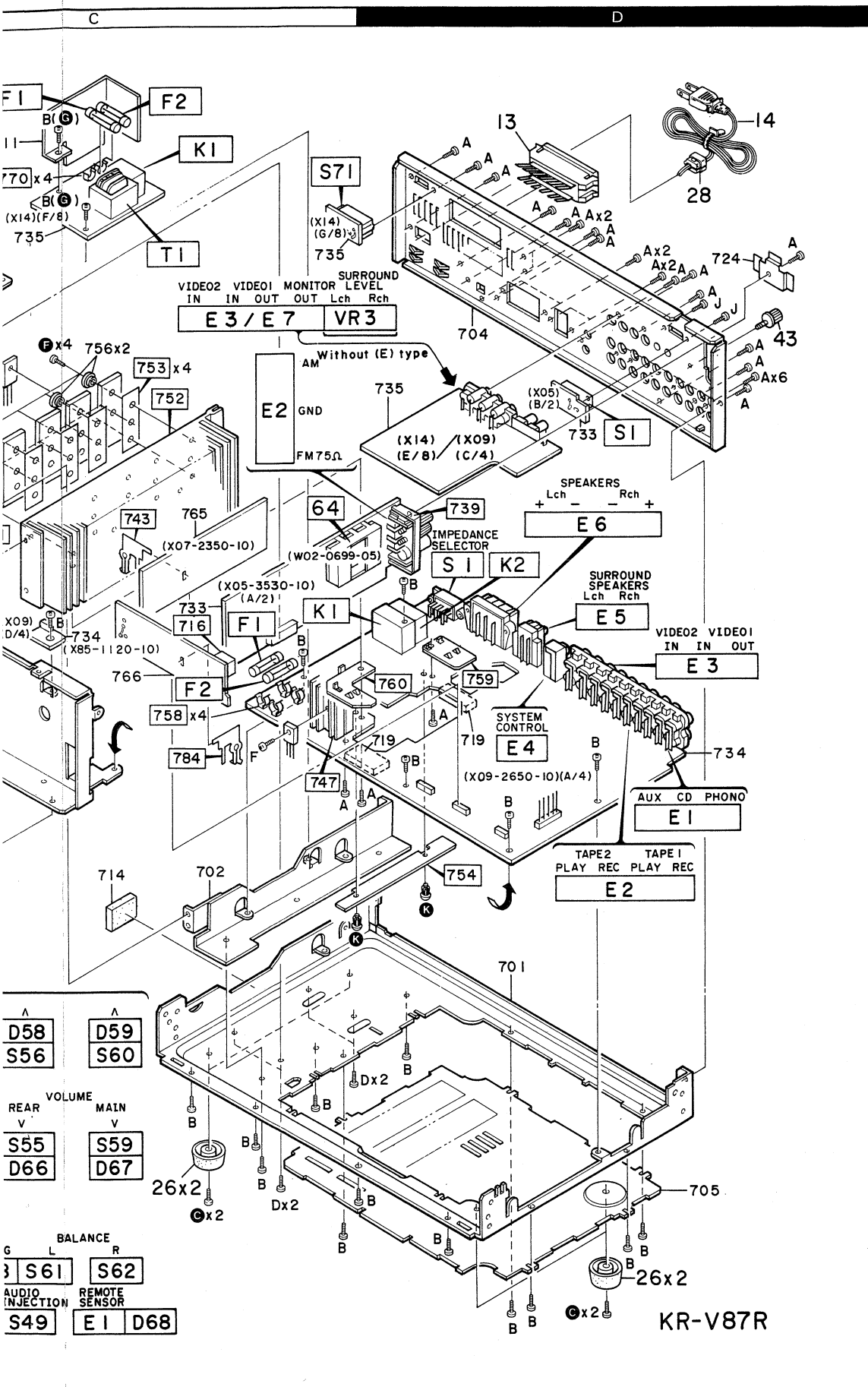
KR-V87R
KENWOOD

KR-V87R KR-V87R
EXPLODED VIEW



PARTS LIST

× New Parts
Parts without Parts No. are not supplied.
Les articles non mentionnés dans le Parts No. ne sont pas fournis.
Teile ohne Parts No. werden nicht geliefert.



Parts with the exploded numbers larger than 700 are not supplied.

Ref. No.	Address	New Parts	Parts No.	Description	Destination	Remarks
参照番号	位置	新	部品番号	部品名 / 規格	仕向	備考
KR-V87R						
1	1A	*	A01-1650-01	METALLIC CABINET		
2	3A	*	A20-5533-02	PANEL	KPUUE	
2	3A	*	A20-5534-02	PANEL	E	
3	2B, 3B	*	A22-0978-01	SUB PANEL	KPUUE	
3	2B, 3B	*	A22-0979-01	SUB PANEL	E	
4	1B		A70-0206-05	REMOTE CONTROLLER ASSY	KUUE	
4	1B		A70-0207-05	REMOTE CONTROLLER ASSY	PE	
7	3D	*	B03-2451-04	DRESSING PLATE		
8	3A	*	B07-1813-04	ESCUTCHEON	KPUUE	
8	3A	*	B07-1814-04	ESCUTCHEON	E	
9	3A	*	B10-0943-03	FRONT GLASS	KPUUE	
9	3A	*	B10-0944-03	FRONT GLASS	E	
-			B46-0092-03	WARRANTY CARD	K	
-			B46-0094-03	WARRANTY CARD	UUE	
-			B46-0095-03	WARRANTY CARD	UUE	
-			B46-0121-03	WARRANTY CARD	P	
-			B46-0122-13	WARRANTY CARD	E	
-		*	B50-8917-00	INSTRUCTION MANUAL (ENGLISH)	KUUE	
-		*	B50-8918-00	INSTRUCTION MANUAL (ENG, FRE)	P	
-		*	B50-9051-00	INSTRUCTION MANUAL (F, G, D)	E	
-			B58-0223-04	CAUTION CARD (PRE-SET 120V)	U	
-			B58-0513-04	CAUTION CARD (PRESET 220-240)	UE	
-			B58-0803-13	CAUTION CARD	E	
-			B59-0092-00	SERVICE DIRECTORY	UUE	
△ 13	1D		E03-0055-05	AC OUTLET	E	
△ 13	1D		E03-0086-05	AC OUTLET	KPUUE	
△ 14	1D		E30-0459-05	AC POWER CORD	E	
△ 14	1D		E30-0812-05	AC POWER CORD	UUE	
△ 14	1D		E30-2209-05	AC POWER CORD	KP	
15	1A		E30-0977-05	CORD WITH PLUG	E	
16	1A		E30-1392-05	CORD WITH PLUG	E	
-		*	H01-7861-04	ITEM CARTON CASE		
-		*	H10-3602-02	POLYSTYRENE FOAMED FIXTURE		
-		*	H10-3603-02	POLYSTYRENE FOAMED FIXTURE		
-			H25-0181-04	PROTECTION BAG (150X260X0.05)		
-			H25-0224-04	PROTECTION BAG (800X400X0.03)		
-			H25-0232-04	PROTECTION BAG (235X350X0.03)		
26	3D		J02-0170-04	FOOT		
27	1B		J19-2815-04	ANTENNA HOLDER		
△ 28	1D		J42-0083-05	POWER CORD BUSHING		
-			J61-0307-05	WIRE BAND		
32	2B		K27-1304-04	KNOB (BUTTON) SP		
33	3A	*	K29-2993-03	KNOB (GE)		
34	3A	*	K29-2994-03	KNOB (GE)		
35	2B	*	K29-2995-03	KNOB (SEL)		
36	3A	*	K29-2996-03	KNOB (SEL)		
37	3A	*	K29-2997-04	KNOB (MATRIX SURROUND)	KPUUE	
37	3A	*	K29-2998-04	KNOB (MATRIX SURROUND)	E	
39	3B	*	K29-3251-04	KNOB ASSY (VOLUME MAIN)	KPUUE	
40	3B	*	K29-3252-04	KNOB ASSY (VOLUME REAR)	KPUUE	
40	3B	*	K29-3253-04	KNOB ASSY (VOLUME REAR)	E	

E: Scandinavia & Europe K: USA P: Canada
U: PX(Far East, Hawaii) T: England M: Other Areas
UE: AAFES(Europe) X: Australia

△ indicates safety critical components.

PARTS LIST

* New Parts

Parts without Parts No. are not supplied.

Les articles non mentionnés dans le Parts No. ne sont pas fournis.

Teile ohne Parts No. werden nicht geliefert.

Ref. No.	Address	New Parts	Parts No.	Description	Destination	Remarks
参照番号	位置	新	部品番号	部品名 / 規格	仕向	備考
KR-V87R						
1	1A	*	A01-1650-01	METALLIC CABINET		
2	3A	*	A20-5533-02	PANEL	KPUUE	
2	3A	*	A20-5534-02	PANEL	E	
3	2B, 3B	*	A22-0978-01	SUB PANEL	KPUUE	
3	2B, 3B	*	A22-0979-01	SUB PANEL	E	
4	1B		A70-0206-05	REMOTE CONTROLLER ASSY	KUUE	
4	1B		A70-0207-05	REMOTE CONTROLLER ASSY	PE	
7	3D	*	B03-2451-04	DRESSING PLATE		
8	3A	*	B07-1813-04	ESCUTCHEON	KPUUE	
8	3A	*	B07-1814-04	ESCUTCHEON	E	
9	3A	*	B10-0943-03	FRONT GLASS	KPUUE	
9	3A	*	B10-0944-03	FRONT GLASS	E	
-			B46-0092-03	WARRANTY CARD	K	
-			B46-0094-03	WARRANTY CARD	UUE	
-			B46-0095-03	WARRANTY CARD	UUE	
-			B46-0121-03	WARRANTY CARD	P	
-			B46-0122-13	WARRANTY CARD	E	
-		*	B50-8917-00	INSTRUCTION MANUAL (ENGLISH)	KUUE	
-		*	B50-8918-00	INSTRUCTION MANUAL (ENG.FRE)	P	
-		*	B50-9051-00	INSTRUCTION MANUAL (F.G.D)	E	
-			B58-0223-04	CAUTION CARD (PRE-SET 120V)	U	
-			B58-0513-04	CAUTION CARD (PRESET220-240)	UE	
-			B58-0803-13	CAUTION CARD	E	
-			B59-0092-00	SERVICE DIRECTORY	UUE	
13	1D		E03-0055-05	AC OUTLET	E	
13	1D		E03-0086-05	AC OUTLET	KPUUE	
14	1D		E30-0459-05	AC POWER CORD	E	
14	1D		E30-0812-05	AC POWER CORD	UUE	
14	1D		E30-2209-05	AC POWER CORD	KP	
15	1A		E30-0977-05	CORD WITH PLUG	E	
16	1A		E30-1392-05	CORD WITH PLUG	E	
-		*	H01-7861-04	ITEM CARTON CASE		
-		*	H10-3602-02	POLYSTYRENE FOAMED FIXTURE		
-		*	H10-3603-02	POLYSTYRENE FOAMED FIXTURE		
-			H25-0181-04	PROTECTION BAG (150X260X0.05)		
-			H25-0224-04	PROTECTION BAG (800X400X0.03)		
-			H25-0232-04	PROTECTION BAG (235X350X0.03)		
26	3D		J02-0170-04	FOOT		
27	1B		J19-2815-04	ANTENNA HOLDER		
28	1D		J42-0083-05	POWER CORD BUSHING		
-			J61-0307-05	WIRE BAND		
32	2B		K27-1304-04	KNOB (BUTTON) SP		
33	3A	*	K29-2993-03	KNOB (GE)	KPUUE	
34	3A	*	K29-2994-03	KNOB (GE)	E	
35	2B	*	K29-2995-03	KNOB (SEL)	KPUUE	
36	3A	*	K29-2996-03	KNOB (SEL)	E	
37	3A	*	K29-2997-04	KNOB (MATRIX SURROUND)	KPUUE	
37	3A	*	K29-2998-04	KNOB (MATRIX SURROUND)	E	
39	3B	*	K29-3251-04	KNOB ASSY (VOLUME MAIN)	KPUUE	
40	3B	*	K29-3252-04	KNOB ASSY (VOLUME REAR)	KPUUE	
40	3B	*	K29-3253-04	KNOB ASSY (VOLUME REAR)	E	

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参照番号	位置	新	部品番号	部品名 / 規格	仕向	備考
L1	1C	*	L01-5381-05	POWER TRANSFORMER	K	
L1	1C	*	L01-5382-05	POWER TRANSFORMER	E	
L1	1C	*	L01-5385-05	POWER TRANSFORMER	UUE	
L1	1C	*	L01-5387-05	POWER TRANSFORMER	P	
43	1D		N09-0287-05	SEMS(TAPTITE SCREW)(3X8)		
C			N08-0128-35	BINDING POST (GND)		
G			N09-1515-05	TAPPING SCREW (3X8)		
			N09-1445-05	SET SCREW (M3X8)		
50	1A		T90-0104-25	LOOP ANTENNA		
51	2B		T90-0121-05	T TYPE ANTENNA		
52	1A		T90-0136-05	ANTENNA ADAPTOR		
TUNER UNIT (X05-3530-10)						
C1	.2		CK45FF1H103Z	CERAMIC	0.010UF	Z
C3			CC93FCH1H391J	CERAMIC	390PF	J
C4			CE04LW1H010M	ELECTRO	1.0UF	50WV
C5			CE04LW1V100M	ELECTRO	10UF	35WV
C6			CK45FF1H103Z	CERAMIC	0.010UF	Z
C7			CK45FF1H223Z	CERAMIC	0.022UF	Z
C8	.9		CK45FF1H103Z	CERAMIC	0.010UF	Z
C10			CK45FF1H223Z	CERAMIC	0.022UF	Z
C11	.12		CK45FF1H103Z	CERAMIC	0.010UF	Z
C13	-15		CE04LW1C470M	ELECTRO	47UF	16WV
C16			CE04LW1H2R2M	ELECTRO	2.2UF	50WV
C17			CE04LW1H3R3M	ELECTRO	3.3UF	50WV
C18			CE04LW1V4R7M	ELECTRO	4.7UF	35WV
C19			CF92FV1H223J	MF	0.022UF	J
C20			CF92FV1H273J	MF	0.027UF	J
C21			CK45FF1H223Z	CERAMIC	0.022UF	Z
C22			CC45FSL1H101J	CERAMIC	100PF	J
C23			CE04LW1HR47M	ELECTRO	0.47UF	50WV
C24			CF92FV1H273J	MF	0.027UF	J
C25			CC45FCH1H220J	CERAMIC	22PF	J
C26			CK45FF1H103Z	CERAMIC	0.010UF	Z
C27			CE04LW1H010M	ELECTRO	1.0UF	50WV
C28			CC45FCH1H220J	CERAMIC	22PF	J
C29	-31		CC45FSL1H101J	CERAMIC	100PF	J
C32			CK45FF1H103Z	CERAMIC	0.010UF	Z
C33	.34		CF92FV1H682J	MF	6800PF	J
C35			CC93FCH1H471J	CERAMIC	470PF	J
C36	.37		CF92FV1H273J	MF	0.027UF	J
C36	.37		CF92FV1H433J	MF	0.043UF	J
C38	.39		CF92FV1H153J	MF	0.015UF	J
C40			CE04LW1H3R3M	ELECTRO	3.3UF	50WV
C41	-43		CE04LW1H2R2M	ELECTRO	2.2UF	50WV
C44			CK45FB1H471K	CERAMIC	470PF	K
C45			CF92FV1H473J	MF	0.047UF	J
C46			CE04LW1HR47M	ELECTRO	0.47UF	50WV
C47			CE04LW1C470M	ELECTRO	47UF	16WV
C48			CE04LW1V100M	ELECTRO	10UF	35WV
C49			CE04LW1C470M	ELECTRO	47UF	16WV
C50	.51		CE04LW1C220M	ELECTRO	22UF	16WV
C52	.53		CC45FSL1H151J	CERAMIC	150PF	J
C52	.53		CF92FV1H122J	MF	1200PF	J
C54			CC45FSL1H151J	CERAMIC	150PF	J

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TC1 .2			C05-0303-05	CERAMIC TRIMMER CAPACITOR(20PF		
E2			E20-0318-05	SCREW TERMINAL BOARD(2P) ANT		
CF1 .2			L72-0531-05	CERAMIC FILTER	KPUUE	
CF1 .2			L72-0536-05	CERAMIC FILTER	E	
CF3			L72-0099-05	CERAMIC FILTER		
CF4			L72-0096-05	CERAMIC FILTER		
L1			L40-1092-17	SMALL FIXED INDUCTOR(1UH,M)		
L2			L40-1021-14	SMALL FIXED INDUCTOR(1.0MH,K)		
L3			L40-1092-17	SMALL FIXED INDUCTOR(1UH,M)		
L4			L30-0439-15	FM IFT		
L6			L79-0125-05	LC FILTER	E	
L7			L79-0739-05	LC FILTER	E	
L8			L31-0509-05	MW-RF COIL		
L9			L32-0277-15	MW OSCILLATING COIL		
L10			L30-0362-05	AM IFT		
X1			L77-1122-05	CRYSTAL RESONATOR		
R14			RD14GB2E101J	FL-PROOF RD 100 J 1/4W		
R22 .23			RD14GB2E101J	FL-PROOF RD 100 J 1/4W		
R24			RD14GB2E221J	FL-PROOF RD 220 J 1/4W		
R45			RD14GB2E101J	FL-PROOF RD 100 J 1/4W	E	
R53			RD14GB2E330J	FL-PROOF RD 33 J 1/4W		
VR1			R12-3128-05	TRIMMING POT. (FM LEVEL)		
VR2			R12-3126-05	TRIMMING POT. (AM LEVEL)		
VR3			R12-1089-05	TRIMMING POT. (VCO)		
VR4			R12-5060-05	TRIMMING POT. (SPEAKER)	E	
S1			S31-2072-05	SLIDE SWITCH	UUE	
D1 .2			1SS133	DIODE		
D1 .2			1SS176	DIODE		
D3			HZ55.1N(B2)	ZENER DIODE		
D3			RD5.1ES(B2)	ZENER DIODE		
D4 -6			1SS133	DIODE		
D4 -6			1SS176	DIODE		
D7			KV1236(Z2)	VARIABLE CAPACITANCE DIODE		
IC1			LA1265	IC(FM/AM TUNER)		
IC2			LM7001	IC(PLL FREQUENCY SYNTHESIZER)		
IC3			AN7470	IC(FM MPX)		
Q1			2SC1923(R,B)	TRANSISTOR		
Q2			2SC1740S(Q,R)	TRANSISTOR		
Q2			2SC945(A)(Q,P)	TRANSISTOR		
Q3			2SC1845(F,E)	TRANSISTOR		
Q4			2SC1740S(Q,R)	TRANSISTOR	E	
Q4			2SC945(A)(Q,P)	TRANSISTOR	E	
Q5 .6			2SC1740S(Q,R)	TRANSISTOR	UUE	
Q5 .6			2SC945(A)(Q,P)	TRANSISTOR	UUE	
Q7 .8			2SA733(A)(Q,P)	TRANSISTOR		
Q7 .8			2SA933S(Q,R)	TRANSISTOR		
64	2D		W02-0699-05	FM FRONT-END ASSY	KPUUE	
64	2D		W02-0700-05	FM FRONT-END ASSY	E	
POWER AMPLIFIER UNIT (X07-2350-14)						
C1 .2			CE04LW1H010M	ELECTRO 1.0UF 50WV		
C5 .6			CE04LW0J101M	ELECTRO 100UF 6.3WV		
C7 .8			CF92FV1H153J	MF 0.015UF J		

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C9 ,10 C9 ,10 C11 ,12 C13 ,14 C15 ,16			CC45FSL1H470J CC45FSL1H680J CC45FSL1H100D CC45FSL1H330J CC45FSL1H221J	CERAMIC 47PF J CERAMIC 68PF J CERAMIC 10PF D CERAMIC 33PF J CERAMIC 220PF J	KPUUE E E KPUUE	
C15 ,16 C17 ,18 C19 -22 C23 C24			CC45FSL1H331J CED4LW1J470M CK45FF1H103Z C90-1333-05 CED4LW1C220M	CERAMIC 330PF J ELECTR 47UF 63WV CERAMIC 0.010UF Z NP-ELEC 22UF 10WV ELECTR 22UF 16WV	E	
C26 C27 ,28			CED4LW1C330M CC45FSL1H470J	ELECTR 33UF 16WV CERAMIC 47PF J	E	
R19 -22 R23 ,24 R29 -32 R39 ,40 R41 ,42			RD14GB2E122J RD14GB2E181J RD14GB2E221J RD14GB2E220J RD14GB2E4R7J	FL-PR00F RD 1.2K J 1/4W FL-PR00F RD 180 J 1/4W FL-PR00F RD 220 J 1/4W FL-PR00F RD 22 J 1/4W FL-PR00F RD 4.7 J 1/4W		
R43 -46 R47 -50 R51 R52 R61			RD14GB2E221J RD14GB2E2R2J RD14GB2E100J RD14GB2E4R7J RD14GB2E101J	FL-PR00F RD 220 J 1/4W FL-PR00F RD 2.2 J 1/4W FL-PR00F RD 10 J 1/4W FL-PR00F RD 4.7 J 1/4W FL-PR00F RD 100 J 1/4W		
R64 VR1 ,2			RD14GB2E101J R12-1070-05	FL-PR00F RD 100 J 1/4W TRIMMING POT. (1K) BIAS-L,R		
D3 ,4 D5 -8 D9 ,10 IC1 Q1 -8			1SS176 1SS178 1SS178 UPC1237HA 2SC945(A)(Q,P)	DIODE DIODE DIODE IC (POWER AMP) TRANSISTOR		
Q9 -12 Q13 -18 Q19 ,20 Q21 ,22 Q23 ,24			2SC1845(F,E) 2SA1123(R,S) 2SC2631(R,S) 2SC2590(Q,R) 2SA1110(Q,R)	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR		
Q25 ,26 Q27 -29			2SC2631(R,S) 2SA992(F,E)	TRANSISTOR TRANSISTOR		
AUDIO UNIT (X09-2650-10)						
C1 ,2 C3 ,4 C5 ,6 C5 ,6 C7 ,8			CED4LW1V100M CC45FSL1H221J CK45FB1H222K CK45FB1H561K CED4LW1A101M	ELECTR 10UF 35WV CERAMIC 220PF J CERAMIC 2200PF K CERAMIC 560PF K ELECTR 100UF 10WV	E KPUUE	
C9 ,10 C11 ,12 C13 ,14 C21 ,22 C25 ,26			CF92FV1H123J CF92FV1H332J CED4LW1V4R7M CC45FSL1H221J CC45FSL1H221J	MF 0.012UF J MF 3300PF J ELECTR 4.7UF 35WV CERAMIC 220PF J CERAMIC 220PF J	E	
C25 ,26 C29 ,30 C29 ,30 C35 C36 -40			CC45FSL1H221J CC45FSL1H221J CC45FSL1H221J CED4LW1H010M CK45FF1H103Z	CERAMIC 220PF J CERAMIC 220PF J CERAMIC 220PF J ELECTR 1.0UF 50WV CERAMIC 0.010UF Z	KPUUE E KPUUE	
C43 ,44			CED4LW1HR47M	ELECTR 0.47UF 50WV		

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C45 ,46			CC45FSL1H101J	CERAMIC 100PF J		
C47 ,48			CE04LW1V100M	ELECTR0 10UF 35WV		
C49 ,50			CE04LW1HR47M	ELECTR0 0.47UF 50WV		
C51 ,52			CC45FSL1H101J	CERAMIC 100PF J		
C53 -56			CE04LW1V100M	ELECTR0 10UF 35WV		
C57 ,58			CC45FSL1H100D	CERAMIC 10PF D		
C59 -62			CF92FV1H104J	MF 0.10UF J	E	
C59 ,60			CF92FV1H473J	MF 0.047UF J	KPUUE	
C63 -68			CK45FB1H561K	CERAMIC 560PF K	E	
C69 -71			CE04LW1V100M	ELECTR0 10UF 35WV	E	
C69 -73			CE04LW1V100M	ELECTR0 10UF 35WV	KPUUE	
C74			CE04LW1H010M	ELECTR0 1.0UF 50WV	KPUUE	
C75			CC45FSL1H221J	CERAMIC 220PF J	KPUUE	
C76			CC45FSL1H050C	CERAMIC 5.0PF C	KPUUE	
C77			CC45FSL1H220J	CERAMIC 22PF J	KPUUE	
C78			CE04LW1H100M	ELECTR0 10UF 50WV	KPUUE	
C79 ,80			CK45FB1H222K	CERAMIC 2200PF K	KPUUE	
C81			CF92FV1H104J	MF 0.10UF J	KPUUE	
C82			CE04LW1E330M	ELECTR0 33UF 25WV	KPUUE	
C83			CE04LW1A101M	ELECTR0 100UF 10WV	KPUUE	
C84			CE04LW1E101M	ELECTR0 100UF 25WV	KPUUE	
C85		*	CE04LW1J100M	ELECTR0 10UF 63WV		
C87 ,88			CK45FF1H103Z	CERAMIC 0.010UF Z		
C89 ,90			C90-1500-05	ELECTR0 5600UF 63WV		
C91 ,92		*	CE04LW1E222M	ELECTR0 2200UF 25WV	E	
C91 ,92		*	CE04LW1E332M	ELECTR0 3300UF 25WV	KPUUE	
C93			CE04LW1C101M	ELECTR0 100UF 16WV		
C94			CE04LW1V100M	ELECTR0 10UF 35WV		
C95			CE04LW1C101M	ELECTR0 100UF 16WV		
C96			CE04LW1H101M	ELECTR0 100UF 50WV		
C97 -100			CE04LW1C101M	ELECTR0 100UF 16WV		
C101,102			CE04LW1V4R7M	ELECTR0 4.7UF 35WV		
C110,111			CE04LW1A101M	ELECTR0 100UF 10WV	E	
C112			CE04LW0J471M	ELECTR0 470UF 6.3WV	E	
C113			CE04LW1A101M	ELECTR0 100UF 10WV	E	
C114			CE04LW0J471M	ELECTR0 470UF 6.3WV	E	
C115			CE04LW1C101M	ELECTR0 100UF 16WV	E	
C116			CK45FB1H102K	CERAMIC 1000PF K		
C117-119			CK45FF1H103Z	CERAMIC 0.010UF Z	KPUUE	
C117,118			CK45FF1H103Z	CERAMIC 0.010UF Z	E	
C120			CE04LW1HR47M	ELECTR0 0.47UF 50WV		
C121			CK45FF1H103Z	CERAMIC 0.010UF Z		
C122			CE04LW1C470M	ELECTR0 47UF 16WV		
C123			CE04LW1V100M	ELECTR0 10UF 35WV		
C124,125			CC45FSL1H221J	CERAMIC 220PF J		
C126			CF92FV1H104J	MF 0.10UF J		
C127			CE04LW1V100M	ELECTR0 10UF 35WV		
C128-130			CK45FF1H472Z	CERAMIC 4700PF Z		
C131			CK45FF1H103Z	CERAMIC 0.010UF Z		
CN1		*	E10-3701-05	FLAT CABLE CONNECTOR		
CN3		*	E10-0408-05	FLAT CABLE CONNECTOR		
CN4		*	E10-0614-05	FLAT CABLE CONNECTOR		
E1			E13-0621-05	PHONE JACK(6P) PHON,VIDEO	E	
E2			E13-0820-05	PHONE JACK(8P) TAPE1,2		

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E3 E4 E4 E5 E6			E13-0621-05 E11-0165-05 E11-0168-05 E20-0475-05 E20-0823-05	PHONE JACK(6P) PHON,VIDEO MINIATURE PHONE JACK(SYSTEM) MINIATURE PHONE JACK(SYSTEM) LOCK TERMINAL BOARD(SURROU SP) LOCK TERMINAL BOARD(8P)SPEAKER	E KPUUE E KPUUE	
E7 E8			E13-0487-05 E11-0162-05	PHONE JACK PHONE JACK (3P) PHONES	E	
△ F1 ,2	2C		F05-4028-05	FUSE (UL)	P	
L1 ,2			L39-0085-05	PHASE-COMPENSATION COIL		
E K			N09-0333-05 N29-0088-05	TAPPING SCREW (3X12) PUSH RIVET (3X6.3)	P	
CP1 ,2 R79 ,80 R81 ,82 R83 ,84 R103,104			R90-0187-05 RS14KB3D4R7J RD14GB2E100J RS14KB3A561J RD14GB2E221J	MULTI-COMP 0.22X2 K 5W FL-PROOF RS 4.7 J 2W FL-PROOF RD 10 J 1/4W FL-PROOF RS 560 J 1W FL-PROOF RD 220 J 1/4W	KPUUE	
R105 R108 R109 R114 R115			R92-0110-05 RD14GB2E101J RS14KB3A4R7J RD14GB2E4R7J RS14KB3D332J	METAL-PLATE 0.47 K 2W FL-PROOF RD 100 J 1/4W FL-PROOF RS 4.7 J 1W FL-PROOF RD 4.7 J 1/4W FL-PROOF RS 3.3K J 2W	KPUUE KPUUE KPUUE	
R116 R117 R117,118 R127 R128			RD14GB2E682J RS14KB3A122J RS14KB3A681J RS14KB3A220J RD14GB2E4R7J	FL-PROOF RD 6.8K J 1/4W FL-PROOF RS 1.2K J 1W FL-PROOF RS 680 J 1W FL-PROOF RS 22 J 1W FL-PROOF RD 4.7 J 1/4W	KPUUE E KPUUE KPUUE KPUUE	
R133 R142-145 R173 R174			RS14KB3A332J RD14GB2E470J RD14GB2E470J RD14GB2E4R7J	FL-PROOF RS 3.3K J 1W FL-PROOF RD 47 J 1/4W FL-PROOF RD 47 J 1/4W FL-PROOF RD 4.7 J 1/4W	E	
K1 K1 ,2 S1 S2			S51-2078-05 S51-2078-05 S31-2136-05 S42-2156-05	MAGNETIC RELAY MAGNETIC RELAY SLIDE SWITCH MULTIPLE PUSH SWITCH	E KPUUE	
D1 -40 D1 -40 D43 D43 D44			1SS133 1SS176 1SS131 1SS178 DSM1A1	DIODE DIODE DIODE DIODE DIODE	KPUUE KPUUE	
D44 D45 D45 D46 D46			S5566B HZS6.8N(B2) RD6.8ES(B2) HZS24N(B) RD24ES(B)	DIODE ZENER DIODE ZENER DIODE ZENER DIODE ZENER DIODE	KPUUE KPUUE	
D47 D47 D47 ,48 D47 ,48 D52			DSM1A1 S5566B DSM1A1 S5566B 1SS133	DIODE DIODE DIODE DIODE DIODE	E E KPUUE KPUUE KPUUE	
D52 D53 D53			1SS176 1SS131 1SS178	DIODE DIODE DIODE	KPUUE KPUUE KPUUE	

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D54			DSM1A1	DIODE	KPUUE	
D54			S5566B	DIODE	KPUUE	
D55			D5SBA20F03	DIODE		
D55			RBV-602LFA	DIODE		
D56			D3SBA20F03	DIODE	KPUUE	
D56			RBV-402LFA	DIODE	KPUUE	
D57			KBP02ML-6127	DIODE	E	
D58			1SS133	DIODE		
D58			1SS176	DIODE		
D59			DSM1A1	DIODE		
D59			S5566B	DIODE		
D60 .61			HZS18N(B)	ZENER DIODE		
D60 .61			RD18ES(B)	ZENER DIODE		
D62			HZS11N(B)	ZENER DIODE	KPUUE	
D62			RD11ES(B)	ZENER DIODE	KPUUE	
D63			HZS6.8N(B2)	ZENER DIODE		
D63			RD6.8ES(B2)	ZENER DIODE		
D64 .65			1SS133	DIODE	KPUUE	
D64 .65			1SS176	DIODE	KPUUE	
D66			HZS5.1N(B2)	ZENER DIODE		
D66			RD5.1ES(B2)	ZENER DIODE		
D67			HZS6.8N(B2)	ZENER DIODE		
D67			RD6.8ES(B2)	ZENER DIODE		
D68 .69			1SS133	DIODE		
D68 .69			1SS176	DIODE		
D70 -73			1SS131	DIODE	E	
D70 -73			1SS178	DIODE	E	
D75			HZS13N(B2)	ZENER DIODE	KPUUE	
D75			RD13ES(B2)	ZENER DIODE	KPUUE	
D80 -82			1SS131	DIODE	E	
D80 -82			1SS178	DIODE	E	
D83			DSM1A1	DIODE		
D83			S5566B	DIODE		
D84 -89			1SS133	DIODE	E	
D84 -89			1SS176	DIODE	E	
D84 .85			1SS133	DIODE	KPUUE	
D84 .85			1SS176	DIODE	KPUUE	
D88 .89			1SS133	DIODE	KPUUE	
D88 .89			1SS176	DIODE	KPUUE	
IC1			NJM4558D-A	IC(OP AMP X2)		
IC1			NJM4560D	IC(OP AMP X2)		
IC2			TC9164N	IC(16CH BILATERAL SELECTOR SW)		
IC3			TC9162N	IC(ANALOG SWITCH ARRAY)		
IC4			LC4966	IC(CMOS LOGIC BILATERAL SW)		
IC5			M5218P	IC(OP AMP X2)		
IC5			NJM4558D	IC(OP AMP X2)		
IC6			TC9176P	IC(2CH ELECTRONIC VOLUME)		
IC7			NJM4558D-A	IC(OP AMP X2)		
IC7			NJM4560D	IC(OP AMP X2)		
IC8			TC9176P	IC(2CH ELECTRONIC VOLUME)		
IC9			M5218P	IC(OP AMP X2)		
IC9			NJM4558D	IC(OP AMP X2)		
IC10			UPC7812HF	IC(VOLTAGE REGULATOR/ +12V)		
Q1 -4			2SC2878(B)	TRANSISTOR		
Q5 .6			2SC3855*5	TRANSISTOR		

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Q7 ,8 Q9 ,10 Q11 Q12 ,13 Q12 ,13			2SA1491*5 2SC3419(Y) 2SC2878(B) 2SA733(A)(Q,P) 2SA933S(Q,R)	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR	KPUUE KPUUE KPUUE	
Q14 Q14 Q15 Q16 Q17			2SC1740S(Q,R) 2SC945(A)(Q,P) 2SC3419(Y) 2SC2003(L,K) 2SA954(L,K)	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR	KPUUE KPUUE KPUUE KPUUE KPUUE	
Q18 ,19 Q20 Q20 Q21 Q21			2SC3851 2SC1740S(Q,R) 2SC945(A)(Q,P) 2SA733(A)(Q,P) 2SA933S(Q,R)	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR	KPUUE KPUUE KPUUE KPUUE KPUUE	
Q22 Q24 Q24 Q25 Q26			2SB941 2SC1740S(Q,R) 2SC945(A)(Q,P) 2SC2003(L,K) 2SA954(L,K)	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR	KPUUE KPUUE KPUUE KPUUE KPUUE	
Q27 Q28 ,29 Q28 ,29 Q30 Q31			2SD1266 2SA733(A)(Q,P) 2SA933S(Q,R) 2SB772 2SA954(L,K)	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR		
Q32 ,33 Q32 ,33 Q34 ,35 Q36 Q36			2SA733(A)(Q,P) 2SA933S(Q,R) 2SA999(E,F) 2SC1740S(Q,R) 2SC945(A)(Q,P)	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR	E KPUUE KPUUE	
Q37 Q38 ,39 Q40 Q40 Q41 ,42			2SD1266 2SC2878(B) 2SC1740S(Q,R) 2SC945(A)(Q,P) DTC144TFF	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR DIGITAL TRANSISTOR	KPUUE KPUUE KPUUE	
Q43		*	2SC2003(L,K)	TRANSISTOR		
DISPLAY UNIT (X14-2320-10)						
76	2B		A33-0101-04	REFLECTOR	KPUUE	
D58 ,59 D59 D66 -68 D67 ,68 PL1			B30-0431-05 B30-0431-05 B30-0431-05 B30-0431-05 B30-1239-05	LED(LN21CPH) LED(LN21CPH) LED(LN21CPH) LED(LN21CPH) LAMP	KPUUE E KPUUE E KPUUE	
C1 C2 -8 C9 ,10 C11 C12 -16			CE04LW1V4R7M CE04LW1H010M CE04LW1V100M CF92FV1H152J CC45FSL1H101J	ELECTRØ 4.7UF 35WV ELECTRØ 1.0UF 50WV ELECTRØ 10UF 35WV MF 1500PF J CERAMIC 100PF J		
C17 C18 C19 C20 ,21 C22 ,23			CE04JW1A101M C91-0937-05 CE04JW1V2R2M CF92FV1H104J CF92FV1H153J	ELECTRØ 100UF 10WV BACKUP 0.047F 5.5WV ELECTRØ 2.2UF 35WV MF 0.10UF J MF 0.015UF J		

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C24 ,25 C26 ,27 C28 ,29 C30 ,31 C32 ,33			CF92FV1H393J CK45FB1H391K CF92FV1H272J CF92FV1H102J CF92FV1H682J	MF 0.039UF J CERAMIC 390PF K MF 2700PF J MF 1000PF J MF 6800PF J		
C34 C35 ,36 C37 C38 C39			CK45FF1H103Z CE04LW1V100M CE04LW0J471M CE04LW1A101M CE04LW0J471M	CERAMIC 0.010UF Z ELECTR0 10UF 35WV ELECTR0 470UF 6.3WV ELECTR0 100UF 10WV ELECTR0 470UF 6.3WV	KPUUE KPUUE KPUUE KPUUE	
C40 C41 -44 C45 ,46 C47 ,48 C49			CE04LW1C101M CE04LW1H2R2M CE04LW1V4R7M CC45FSL1H101J CK45FF1H103Z	ELECTR0 100UF 16WV ELECTR0 2.2UF 50WV ELECTR0 4.7UF 35WV CERAMIC 100PF J CERAMIC 0.010UF Z	KPUUE KPUUE KPUUE KPUUE KPUUE	
C51 C52 C53 C54 C55			CF92FV1H392J CF92FV1H102J CE04LW1H010M CE04LW1V4R7M CC45FSL1H101J	MF 3900PF J MF 1000PF J ELECTR0 1.0UF 50WV ELECTR0 4.7UF 35WV CERAMIC 100PF J	KPUUE KPUUE KPUUE KPUUE KPUUE	
C56 C57 C58 ,59 C60 C61			CE04LW1H010M CF92FV1H102J CE04LW1A221M CE04LW1H010M CF92FV1H562J	ELECTR0 1.0UF 50WV MF 1000PF J ELECTR0 220UF 10WV ELECTR0 1.0UF 50WV MF 5600PF J	KPUUE KPUUE KPUUE KPUUE KPUUE	
C62 C63 C65 C66 C67			CF92FV1H472J CK45FB1H471K CE04LW1H010M CE04LW1C331M CE04LW1A221M	MF 4700PF J CERAMIC 470PF K ELECTR0 1.0UF 50WV ELECTR0 330UF 16WV ELECTR0 220UF 10WV	KPUUE KPUUE KPUUE KPUUE KPUUE	
C68 C69 C70 C71 C72			CE04LW1HR33M CE04LW1HOR1M CE04LW1V100M CF92FV1H103J CF92FV1H473J	ELECTR0 0.33UF 50WV ELECTR0 0.1UF 50WV ELECTR0 10UF 35WV MF 0.010UF J MF 0.047UF J	KPUUE KPUUE KPUUE KPUUE KPUUE	
C73 C74 C75 C76 C77			CF92FV1H472J CF92FV1H273J CK45FB1H471K CE04LW1H010M CF92FV1H562J	MF 4700PF J MF 0.027UF J CERAMIC 470PF K ELECTR0 1.0UF 50WV MF 5600PF J	KPUUE KPUUE KPUUE KPUUE KPUUE	
C78 C79 C80 C81 C82			CE04LW1H010M CE04LW1V100M CE04LW1C101M CE04LW1V100M CE04LW1C470M	ELECTR0 1.0UF 50WV ELECTR0 10UF 35WV ELECTR0 100UF 16WV ELECTR0 10UF 35WV ELECTR0 47UF 16WV	KPUUE KPUUE KPUUE KPUUE	
C83 C84 C84 C85 C86		*	CE04LW1V4R7M CE04LW1E471M CE04LW1V102M CE04LW1C101M CE04JW1HOR1M	ELECTR0 4.7UF 35WV ELECTR0 470UF 25WV ELECTR0 1000UF 35WV ELECTR0 100UF 16WV ELECTR0 0.1UF 50WV	UUE KPE UUE KPUUE	
CN5 CN11 CN12 E3		*	E10-0509-05 E10-3702-05 E10-2605-05 E13-0487-05	FLAT CABLE CONNECTOR FLAT CABLE CONNECTOR FLAT CABLE CONNECTOR PHONE JACK (MONITOR IN/OUT)	KPUUE	

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△ F1	1C		F05-6029-05	FUSE (UL)	KP	
△ F1	1C		F06-2021-05	FUSE (SEMKO) (250V T2A)	E	
F1 ,2	1C		F06-3027-05	FUSE (UL)	UUE	
△ F2	1C		F05-2525-05	FUSE (SEMKO) (250V T2.5A)	E	
L1			L79-0312-05	LC FILTER	KPUUE	
△ T1	1C		L01-7651-05	POWER TRANSFORMER	KP	
△ T1	1C		L01-7652-05	POWER TRANSFORMER	E	
△ T1	1C		L01-7658-05	POWER TRANSFORMER	UUE	
X1			L78-0209-05	RESONATOR (4.194MHZ)		
CP1 ,2			R90-0482-05	MULTI-COMP 100KX4 J 1/6W		
CP3			R90-0492-05	MULTI-COMP 100KX8 J 1/6W		
CP4			R90-0483-05	MULTI-COMP 100KX13 J 1/6W		
CP5		*	R90-0806-05	MULTIPLE RESISTOR		
CP6			R90-0465-05	MULTI-COMP 100K13 J 1/6W		
R106			RD14GB2E470J	FL-PROOF RD 47 J 1/4W	KPUUE	
R128,129			RD14GB2E681J	FL-PROOF RD 680 J 1/4W	KPUUE	
R137			RD14GB2E101J	FL-PROOF RD 100 J 1/4W	KPUUE	
R138			RD14GB2E222J	FL-PROOF RD 2.2K J 1/4W	KPE	
R138			RD14GB2E392J	FL-PROOF RD 3.9K J 1/4W	UUE	
R150,151			RD14GB2E470J	FL-PROOF RD 47 J 1/4W	KPUUE	
R167			R92-0173-05	RC 2.2M M 1/2W	KP	
VR1 ,2			R12-3126-05	TRIMMING PNT. (ADJ)	KPUUE	
VR3			R29-5019-05	POTENTIOMETER (SURROUND LEVEL)	KPUUE	
K1	1C		S51-1052-05	MAGNETIC RELAY		
S1 -6			S40-1064-05	PUSH SWITCH (POWER, EQ/SPI, EXT)	E	
S1 -70			S40-1064-05	PUSH SWITCH (POWER, EQ/SPI, EXT)	KPUUE	
S9 -54			S40-1064-05	PUSH SWITCH (EQ. ON, EQ. REC, EXT)	E	
S57 -70			S40-1064-05	PUSH SWITCH (TUNE, VR, EXT)	E	
△ S71			S31-2128-05	SLIDE SWITCH (POWER TYPE) AC	UUE	
D1 -15			1SS133	DIODE	KPE	
D1 -15			1SS176	DIODE	KPE	
D1 -17			1SS133	DIODE	UUE	
D1 -17			1SS176	DIODE	UUE	
D17			1SS133	DIODE	KPE	
D17			1SS176	DIODE	KPE	
D19			1SS133	DIODE	E	
D19			1SS176	DIODE	E	
D20 -29			1SS133	DIODE	KPUUE	
D20 -29			1SS176	DIODE	KPUUE	
D21 -29			1SS133	DIODE	E	
D21 -29			1SS176	DIODE	E	
D30			HZS6.8N(B2)	ZENER DIODE		
D30			RD6.8ES(B2)	ZENER DIODE		
D31 -40			1SS133	DIODE	KPUUE	
D31 -40			1SS176	DIODE	KPUUE	
D31 ,32			1SS133	DIODE	E	
D31 ,32			1SS176	DIODE	E	
D41 -44			DSM1A1	DIODE	KPE	
D41 -44			S5566B	DIODE	KPE	
D41 -46			DSM1A1	DIODE	UUE	
D41 -46			S5566B	DIODE	UUE	
D47			HZS6.2N(B2)	ZENER DIODE		
D47			RD6.2ES(B2)	ZENER DIODE		
D48 ,49			1SS133	DIODE	UUE	

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D48 ,49 D50 D50 D51 ,52 D51 ,52			1SS176 DSM1A1 S5566B 1SS133 1SS176	DIODE DIODE DIODE DIODE DIODE	UUE	
D54 -57 D54 -57 D60 -65 D60 -65 D69 ,70			1SS133 1SS176 1SS133 1SS176 1SS133	DIODE DIODE DIODE DIODE DIODE	UUE	
D69 ,70 D71 ,72 D71 ,72 FL1 IC1			1SS176 HZ58. 2N(B2) RDB. 2ES(B2) BG-526GK UPD75108CW-200	DIODE ZENER DIODE ZENER DIODE FLUORESCENT INDICATOR TUBE IC(MICROPROCESSOR)	UUE KPUUE KPUUE	
IC2 IC3 IC4 -7 IC8 ,9 IC10			UPD6300C LC7565 UPA80C UPC4574C UPD4081BC	IC(FL LATCH DRIVER) IC(GRAPHIC EQ FL DISPLAY DR) IC(7CH TRANSISTOR ARRAY) IC(OP AMP X4) IC(AND X4)		
IC11 IC12 IC13 IC14 IC15-18			MN3101 MN3007 NE645N PST529C NJM4558D	IC(BBD CLOCK DRIVER) IC(BBD) IC(DNLBY B PROCESSOR) IC(SYSTEM RESET) IC(OP AMP X2)	KPUUE KPUUE KPUUE	
Q1 ,2 Q1 ,2 Q3 Q9 ,10 Q10			2SC1740S(Q,R) 2SC945(A)(Q,P) 2SA999(E,F) 2SD1266 2SD1266	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR	KPUUE UUE KPE	
Q11 Q11 Q12 Q13 Q13			2SC1740S(Q,R) 2SC945(A)(Q,P) 2SA954(L,K) 2SC2003(L,K) 2SD1266	TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR	UUE UUE UUE KPE UUE	
Q14 -17 Q15 Q17 Q18			DTC114EFF DTC114EFF DTC114EFF 2SA999(E,F)	DIGITAL TRANSISTOR DIGITAL TRANSISTOR DIGITAL TRANSISTOR TRANSISTOR	KPUUE E E KPUUE	
E1	3B		WD2-0776-05	ELECTRIC CIRCUIT MODULE		
EQUALIZER UNIT (X85-1120-10)						
C1 ,2 C3 ,4 C5 ,6 C7 ,8 C9 ,10			CE04LW1H010M CK45FB1H471K CE04LW1H010M CE04LW1H2R2M CF92FV1H124J	ELECTRO 1.0UF 50WV CERAMIC 470PF K ELECTRO 1.0UF 50WV ELECTRO 2.2UF 50WV MF 0.12UF J		
C11 ,12 C13 ,14 C15 ,16 C17 ,18 C19 ,20			CE04LW1H010M CF92FV1H473J CE04LW1HR33M CF92FV1H183J CF92FV1H124J	ELECTRO 1.0UF 50WV MF 0.047UF J ELECTRO 0.33UF 50WV MF 0.018UF J MF 0.12UF J		
C21 ,22 C23 ,24 C25 ,26			CF92FV1H822J CF92FV1H563J CF92FV1H272J	MF 8200PF J MF 0.056UF J MF 2700PF J		

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C27 ,28 C29 ,30 C31 ,32 C33 ,34 C35			CF92FV1H183J CF92FV1H152J CF92FV1H822J CK45FB1H471K CED4LW1V4R7M	MF 0.018UF J MF 1500PF J MF 8200PF J CERAMIC 470PF K ELECTRON 4.7UF 35WV		
D1 D1 IC1 IC2 ,3			HZS6.8N(B2) RD6.8ES(B2) LC7522 M5229P	ZENER DIODE ZENER DIODE IC(7CH GRAPHIC EQUALIZER) IC(7CH GRAPHIC EQUALIZER)		
FM FRONT-END ASS'Y (W02-0699-05) : KPUUE						
D1 -3 TR1 TR2 ,3 TR4			1SV110 2SK439 2SC3391 2SC3494	DIODE TRANSISTOR TRANSISTOR TRANSISTOR		
FM FRONT-END ASS'Y (W02-0700-05) : E						
D1 -4 TR1 TR2 ,3 TR2 ,3 TR4 TR5 TR5			1SV110 3SK85 2SC3391 2SC535 2SC2839 2SK241 2SK439	DIODE TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR TRANSISTOR		

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